ENVIRONMENTAL STANDARDS
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March 8, 2007

Mr. Chuck Zimmerman
Brown and Caldwell
3264 Goni Road, Suite 153
Carson City, NV 89706

Dear Mr. Zimmerman:

Enclosed is the quality assurance review of the analytical data for the analyses of five filter samples that were collected on December 1, 2006, in association with the ARCO Yerington Mine Site (Event 113). The samples were analyzed for gross alpha, radium-226, radium-228, thorium-228, thorium-230, and thorium-232.

Based on this quality assurance review, the gross alpha results, one radium-226 result, and two thorium-230 results were qualified as estimated because these positive results were reported between the method detection limit and the reporting limit.

If you have any questions or comments, please do not hesitate to call.

Sincerely,

Konstadina Vlahogiani, M.S.
Senior Quality Assurance Chemist III/
Project Manager

Concurred by:

Rock J. Vitale, CEAC, CPC
Technical Director of Chemistry/
Principal

KV/RJV:hm
Enc.

cc: Ms. Susie Kocsis – Brown and Caldwell

1140 Valley Forge Road P.O. Box 810 Valley Forge, PA 19482-0810 **Tel:** 610.935.5577 **Fax:** 610.935.5583 **Web**: www.envstd.com

ENVIRONMENTAL STANDARDS
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QUALITY ASSURANCE REVIEW

OF THE FILTER SAMPLES COLLECTED AT THE

ARCO YERINGTON MINE SITE

ON DECEMBER 1, 2006 (EVENT 113)

March 8, 2007

Prepared for:

ATLANTIC RICHFIELD COMPANY
28100 Torch Parkway
Warrenville, IL 60555

Prepared by:

ENVIRONMENTAL STANDARDS, INC.
1140 Valley Forge Road
P.O. Box 810
Valley Forge, PA 19482-0810

Issued to:

BROWN AND CALDWELL
3264 Goni Road, Suite 153
Carson City, NV 89706

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1.0 Introduction

This quality assurance (QA) review is based upon a rigorous examination of all data generated from the analyses of five filter samples that were collected by Brown and Caldwell on December 1, 2006, in association with the ARCO Yerington Mine Site (Event 113). The samples included in this QA review are specified on Table 1.

This review has been performed with guidance from the "National Functional Guidelines for Inorganic Data Review" (US EPA, 2/94). This document is not entirely applicable to the type of analyses and analytical protocols performed on the samples evaluated in this QA review, but it has been used with professional judgment to aid the data reviewer in the interpretation of the QC analysis results and in the overall evaluation of the sample data deliverables. It should also be noted that results affected by blank contamination will be designated with a "UJ" qualifier (not the "U" qualifier typically used when following the National Functional Guidelines) in order to be consistent with historical project validation protocols and the current project database.

The reported analytical results are presented as a summary of the data in Section 2. Data were examined to determine the usability of the analytical results and the compliance relative to the requirements specified in the published analytical methods, the Severn Trent Laboratories, Inc. (STL) analytical Standard Operating Procedures (SOPs), the Quality Assurance Project Plan (QAPjP) for the Atlantic Richfield Company Yerington Mine Site (October 2006), and the Technical Requirements For Environmental Laboratory Analytical Services BP Global Contract Lab Network (GCLN) (5/22/02, Revision 08). Qualifier codes have been placed next to results to enable the data user to quickly assess the qualitative and/or quantitative reliability of any result. This critical QA review identifies data quality issues for specific samples and specific evaluation criteria. The data qualifications allow the data's end-user to best understand the usability of the analytical results. Data not qualified in this report should be considered valid based on the QC criteria that have been reviewed. Details of this QA review are presented in Section 1 of this report. This report was prepared to provide a critical review of the laboratory analyses and reported analytical results. Rigorous QA reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories.

TABLE 1

SAMPLES INCLUDED IN THIS QUALITY ASSURANCE REVIEW

Field Sample Identification	Laboratory Sample Identification	Report Number	Matrix	Date Sample Collected	Parameters Examined
P-0812	J7A090287-1	34418	Filter	2/1/06	α, ^{226}Ra, ^{228}Ra, Th
P-0813	J7A090287-2	34418	Filter	2/1/06	α, ^{226}Ra, ^{228}Ra, Th
P-0814	J7A090287-3	34418	Filter	2/1/06	α, ^{226}Ra, ^{228}Ra, Th
P-0815 (Field Duplicate of P-0812)	J7A090287-4	34418	Filter	2/1/06	α, ^{226}Ra, ^{228}Ra, Th
000580	J7A090287-5	34418	Filter	2/1/06	α, ^{226}Ra, ^{228}Ra, Th

NOTES:

α - Gross Alpha by STL SOP RICH-RC-5014/5016 (based on US EPA Method 900.0).
^{226}Ra - Radium-226 by STL SOP RICH-RC-5005 (based on US EPA Method 903.1).
^{228}Ra - Radium-228 by STL SOP RICH-RC-5005 (based on US EPA Method 904.0).
Th - Thorium-228, Thorium-230, and Thorium-232 by STL SOP RICH-RC-5087.

2.0 Findings

Complete support documentation for this radiological analysis QA review is presented in Section 8.0 of this report.

A. Gross Alpha Analysis

Five samples were analyzed for gross alpha by STL SOP RICH-RC-5014/5016 (based on US EPA Method 900.0). The findings offered in this report for this fraction are based on the items on the following table.

Item Reviewed	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Holding Times	√			
Blank Results	√			
LCS Recoveries	√			
Field Duplicate Precision	√			
Efficiency Checks	√			
Background Checks	√			
Sample Preparation	√			
Quantitation of Results			√	
Evaluation of Raw Data	√			

Quantitation of Results: All positive results reported at concentrations greater than the method detection limit (MDL) but less than the reporting limit (RL) were qualified as estimated and have been flagged "J" on the data tables.

B. Radium-226 Analysis

Five samples were analyzed for radium-226 by STL SOP RICH-RC-5005 (based on US EPA Method 903.1). The findings offered in this report for this fraction are based on the items on the following table.

Item Reviewed	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Holding Times	√			
Blank Results	√			
LCS Recoveries	√			
Chemical Yield	√			
Field Duplicate Precision	√			
Instrument Performance Checks	√			
Background Checks	√			

Item Reviewed	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Sample Preparation	√			
Quantitation of Results			√	
Evaluation of Raw Data	√			

Quantitation of Results: All positive results reported at concentrations greater than the MDL but less than the RL were qualified as estimated and have been flagged "J" on the data tables.

C. Radium-228 Analysis

Five samples were analyzed for radium-228 by STL SOP RICH-RC-5005 (based on US EPA Method 904.0). The findings offered in this report for this fraction are based on the items on the following table.

Item Reviewed	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Holding Times	√			
Blank Results	√			
LCS Recoveries	√			
Chemical Yield	√			
Field Duplicate Precision	√			
Efficiency Checks	√			
Background Checks	√			
Sample Preparation	√			
Quantitation of Results	√			
Evaluation of Raw Data	√			

No findings were observed for the radium-228 fraction.

D. Thorium-228, Thorium-230, and Thorium-232 Analysis

Five samples were analyzed for thorium-228, thorium-230, and thorium-232 by STL SOP RICH-RC-5087. The findings offered in this report for this fraction are based on the items on the following table.

Item Reviewed	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Holding Times	√			
Blank Results	√			
LCS Recoveries				√

Item Reviewed	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Chemical Yield	√			
Field Duplicate Precision	√			
Energy Calibration Check	√			
Efficiency Calibration Check	√			
Background Check	√			
Full Width at the Half Maximum	√			
Sample Preparation	√			
Quantitation of Results			√	
Evaluation of Raw Data	√			

LCS Recoveries: As noted in the Case Narrative, a tracer was inadvertently added to the LCS vial instead of a spike solution; therefore, no LCS in this batch of samples was analyzed for isotopic thorium. Data were not qualified due to this issue.

Quantitation of Results: All positive results reported at concentrations greater than the MDL but less than the RL were qualified as estimated and have been flagged "J" on the data tables.

3.0 Qualifier Summary Tables

A. Gross Alpha Analysis

Analyte	Report Number	Samples	Validation Qualifier	Reason for Qualification
gross alpha	34418	All samples	J	positive result reported between the MDL and RL

B. Radium-226 Analysis

Analyte	Report Number	Sample(s)	Validation Qualifier	Reason(s) for Qualification
radium-226	34418	000580	J	positive result reported between the MDL and RL

C. Radium-228 Analysis

Analyte	Report Number	Sample(s)	Validation Qualifier	Reason(s) for Qualification
Qualification of Data Was Not Warranted				

D. Thorium-228, Thorium-230, and Thorium-232 Analysis

Analyte	Report Number	Samples	Validation Qualifier	Reason for Qualification
thorium-230	34418	P-0812 and 000580	J	positive result reported between the MDL and RL

4.0 Overall Assessment

Based on this quality assurance review, the gross alpha results, one radium-226 result, and two thorium-230 results were qualified as estimated due to positive results reported between the MDL and the RL.

5.0 Radiological Data Qualifiers and Valid Reason Codes

Radiological Data Qualifiers

U Analyte not detected at the detection limit concentration.

J Reported value is an estimated concentration.

UJ Analyte not detected at an estimated detection limit concentration.

R These data were rejected and were not used for any purposes.

UR The analyte was not detected. The detection limit is unreliable and may be representative of a false negative. These data were rejected and are not usable for any purpose.

Valid Reason Codes

1 Holding time violation
2 Method blank contamination
3 Surrogate recovery
4 Matrix spike/matrix spike duplicate recovery
5 Matrix spike/matrix spike duplicate precision outside limits
6 Laboratory control sample recovery
7 Field blank contamination
8 Field duplicate precision outside limits

9	Other deficiencies (including cooler temperature)
A	Absence of supporting QC
S	ICV, CCV or column performance check problem
Y	Initial and continuing calibration blank problem
M	Interference check samples problem
O	Post-digestion spike outside of 85-115%
F	MSA correlation coefficient <0.995, or MSA not done
G	Serial dilution problem
K	DFTPP or BFB tuning problem
Q	Initial calibration problem
X	Internal standard recovery problem
V	Second source standard calibration verification problem
L	Low bias
Z	Retention time problem
N	Counting time error (radionuclide chemistry)
W	Detector instability (radionuclide chemistry)
C	Co-elution of compounds
E	Value exceeds linear calibration range
I	Interferences present during analysis
T	Trace level compound, poor quantitation
P	1C/2C precision outside of limits
B	LCS/LCSD precision outside limits
D	Lab Dup/Rep precision outside limits
H	High bias

6.0 Signatures

Report prepared by:

Konstadina Vlahogiani, M.S.
Senior Quality Assurance Chemist III/
Project Manager

Report reviewed by:

Donald J. Lancaster, M.S.
Senior Quality Assurance Chemist II

Report reviewed and approved by:

Rock J. Vitale, CEAC, CPC
Technical Director of Chemistry/
Principal

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1140 Valley Forge Road
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Valley Forge, PA 19482-0810

(610) 935-5577

Date: 3/8/07

7.0 ANALYTICAL RESULTS

			Lab Sample	9JMK8110					9JMK8120					9JMLA110				
			Field Sample	P-0812					P-0812					P-0813				
			Collect Date	12/1/2006					12/1/2006					12/1/2006				
			Type	N					N					N				
			Parent															
Method	CAS Number	Chemical Name	Units	Result	Qual / Reason	MDL	RDL	Uncert	Result	Qual / Reason	MDL	RDL	Uncert	Result	Qual / Reason	MDL	RDL	Uncert
E900.0	ALPHA	ALPHA, GROSS	PCI	7.36	J / T	5.37	20	4.3						5.02	J / T	3.81	20	3.2
E903.1	RA-226	RADIUM-226	PCI	-0.0186	U	0.804	1	0.42						0.269	U	0.745	1	0.43
E904.0	RA-228	RADIUM-228	PCI						1.15	U	2.59	3.1	1.2					
ISOTH	TH-228	THORIUM-228	PCI	0	U	0.425	1	0.17						0.0779	U	0.839	1	0.37
	TH-230	THORIUM-230	PCI	0.303	J / T	0.227	1	0.22						0.224	U	0.448	1	0.27
	TH-232	THORIUM-232	PCI	-0.0378	U	0.278	1	0.093						0	U	0.448	1	0.17

			Lab Sample	9JMLA120					9JMLA410					9JMLA420				
			Field Sample	P-0813					P-0814					P-0814				
			Collect Date	12/1/2006					12/1/2006					12/1/2006				
			Type	N					N					N				
			Parent															
Method	CAS Number	Chemical Name	Units	Result	Qual / Reason	MDL	RDL	Uncert	Result	Qual / Reason	MDL	RDL	Uncert	Result	Qual / Reason	MDL	RDL	Uncert
E900.0	ALPHA	ALPHA, GROSS	PCI						10.2	J / T	5.17	20	4.9					
E903.1	RA-226	RADIUM-226	PCI						-0.201	U	0.655	1	0.3					
E904.0	RA-228	RADIUM-228	PCI	0.443	U	2.19	3.1	0.96						0.859	U	2.57	3.1	1.2
ISOTH	TH-228	THORIUM-228	PCI						0.186	U	0.446	1	0.26					
	TH-230	THORIUM-230	PCI						0.127	U	0.305	1	0.18					
	TH-232	THORIUM-232	PCI						-0.0254	U	0.305	1	0.11					

			Lab Sample	9JMLA710					9JMLA720					9JMLA810				
			Field Sample	P-0815					P-0815					000580				
			Collect Date	12/1/2006					12/1/2006					12/1/2006				
			Type	FD					FD					N				
			Parent	P-0812					P-0812									
Method	CAS Number	Chemical Name	Units	Result	Qual / Reason	MDL	RDL	Uncert	Result	Qual / Reason	MDL	RDL	Uncert	Result	Qual / Reason	MDL	RDL	Uncert
E900.0	ALPHA	ALPHA, GROSS	PCI	8.52	J / T	4.52	20	4.3						12.5	J / T	4.49	20	5.3
E903.1	RA-226	RADIUM-226	PCI	0.422	U	0.503	1	0.36						0.52	J / T	0.312	1	0.3
E904.0	RA-228	RADIUM-228	PCI						0.325	U	2.54	3.1	1.1					
ISOTH	TH-228	THORIUM-228	PCI	0.164	U	0.201	1	0.16						0.115	U	0.247	1	0.15
	TH-230	THORIUM-230	PCI	0.0954	U	0.163	1	0.12						0.365	J / T	0.195	1	0.24
	TH-232	THORIUM-232	PCI	0.0204	U	0.193	1	0.071						0.0276	U	0.165	1	0.07

Lab Sample	9JMLA820
Field Sample	000580
Collect Date	12/1/2006
Type	N
Parent	

Method	CAS Number	Chemical Name	Units	Result	Qual / Reason	MDL	RDL	Uncert
E900.0	ALPHA	ALPHA, GROSS	PCI					
E903.1	RA-226	RADIUM-226	PCI					
E904.0	RA-228	RADIUM-228	PCI	0.902	U	2.3	3.1	1
ISOTH	TH-228	THORIUM-228	PCI					
	TH-230	THORIUM-230	PCI					
	TH-232	THORIUM-232	PCI					

8.0 SUPPORTING DOCUMENTATION

Analytical Data Package Prepared For

Brown and Caldwell

Yerington Mine - Event #113

Radiochemical Analysis By

STL Richland

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code: STLR

Data Package Contains _____ Pages

Report No.: 34418

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
33442	EVENT 113	000580	J7A090287-5	JMLA81AA	9JMLA810	7011219
		000580	J7A090287-5	JMLA81AE	9JMLA810	7011221
		000580	J7A090287-5	JMLA81AC	9JMLA810	7011225
		000580	J7A090287-5	JMLA82AD	9JMLA820	7029198
		P-0812	J7A090287-1	JMK811AA	9JMK8110	7011219
		P-0812 *	J7A090287-1	JMK811AE	9JMK8110	7011221
		P-0812 *	J7A090287-1	JMK811AC	9JMK8110	7011225
		P-0812	J7A090287-1	JMK812AD	9JMK8120	7029198
		P-0813	J7A090287-2	JMLA11AA	9JMLA110	7011219
		P-0813	J7A090287-2	JMLA11AE	9JMLA110	7011221
		P-0813	J7A090287-2	JMLA11AC	9JMLA110	7011225
		P-0813	J7A090287-2	JMLA12AD	9JMLA120	7029198
		P-0814	J7A090287-3	JMLA41AA	9JMLA410	7011219
		P-0814	J7A090287-3	JMLA41AE	9JMLA410	7011221
		P-0814	J7A090287-3	JMLA41AC	9JMLA410	7011225
		P-0814	J7A090287-3	JMLA42AD	9JMLA420	7029198
		P-0815	J7A090287-4	JMLA71AA	9JMLA710	7011219
		P-0815 *	J7A090287-4	JMLA71AE	9JMLA710	7011221
		P-0815 *	J7A090287-4	JMLA71AC	9JMLA710	7011225
		P-0815	J7A090287-4	JMLA72AD	9JMLA720	7029198

* Field duplicates

SEVERN TRENT STL

Certificate of Analysis

STL Richland
2800 George Washington Way
Richland, WA 99354

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February 6, 2007

Brown & Caldwell
2701 Prospect Park Drive
Rancho Cordova, CA 95670

Attention: Guy Graening

Date Received at Lab	:	January 8, 2006
Project Name	:	Air Quality Monitoring Yerington Mine
Project Number	:	121243
Event Number	:	113
PO Number	:	129682.001
Sample Type	:	Five (5) Filters
SDG Number	:	33444

CASE NARRATIVE

I. Introduction

On January 8, 2006, five filter samples were received at the STL Richland (STLR) laboratory for radiochemical analysis. Upon receipt, the samples were assigned the STLR identification numbers as described on the cover page of the Analytical Data Package report form. The samples were assigned to Lot Number J7A100118.

II. Sample Receipt

The samples were received in good condition and no anomalies were noted during check-in.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information; analytical results and the appropriate associated statistical uncertainties.

The analysis requested was:

Alpha Spectroscopy
Thorium-228, -230, -232 by method RICH-RC-5087
Gas Proportional Counters
Gross Alpha by method STL-RICHRC5016/5014
Radium-228 by method STL RICH-RC-5005
Alpha Scintillation Counter
Radium-226 by method STL RICH-RC-5005

IV. Quality Control

The analytical result for each analysis performed includes a minimum of one laboratory control sample (LCS), and one reagent blank sample analysis. Any exceptions have been noted in the "Comments" section.

V. Comments

Thorium-228, -230, -232:

A tracer was added to the LCS vial instead of a spike therefore there is no LCS in the batch. The process has been shown to be in control. Data is accepted. Except as noted, the LCS, batch blank and sample results are within analytical requirements.

Gross Alpha Analysis:

The LCS, batch blank and sample results are within analytical requirements.

Radium-228 Analysis:

The original analysis had a low LCS recovery of 72%. The batch was reanalyzed with good results. Data is accepted. Except as noted, The LCS, batch blank and sample results are within analytical requirements.

Radium-226 Analysis:

The LCS, batch blank and sample results are within analytical requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. The Laboratory Manager or a designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Reviewed and approved:

Sherryl A. Adam
Project Manager

Drinking Water Method Cross References

	DRINKING WATER ASTM METHOD CROSS REFERENCES	
Referenced Method	**Isotope(s)**	**STL Richland's SOP number**
EPA 901.1	Cs-134, I-131	RICH-RC-5017
EPA 900.0	Alpha & Beta	RICH-RC-5014
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr89/90	RICH-RC-5006
ASTM D2460	Total Radium	RICH-RC-5027
Standard Method 7500-U-C & ASTM D5174	Uranium	RICH-RC-5058
EPA 906.0	Tritium	RICH-RC-5007
NOTE:		
The Gross Alpha LCS is prepared with Am-241 (unless otherwise specified in the case narrative)		
The Gross Beta LCS is prepared with Sr/Y-90 (unless otherwise specified in the case narrative)		

Uncertainty Estimation

STL Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, R = constants * f(x,y,z,...). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/vn), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or STL Richland.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) ***u_c - Combined Uncertainty.***	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, ***u_c the combined uncertainty***. The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or STL Richland "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. Lc=(1.645 * Sqrt(2*(BkgrndCnt/BkgrndCntMin)/SCntMin)) * (ConvFct/(Eff*Yld*Abn*Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client The sample number is a sequential number assigned to each sample in the Lot.
MDC|MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. MDC = (4.65 * Sqrt((BkgrndCnt/BkgrndCntMin)/SCntMin) + 2.71/SCntMin) * (ConvFct/(Eff * Yld * Abn * Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the **Work Order** Number.
RER	The equation Replicate Error Ratio = (S-D)/[sqrt($TPUs^2$ + $TPUd^2$)] as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by STL Richland upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Konstadina Vlahogiani

From: Adam, Sherryl [SAdam@stl-inc.com]
Sent: Tuesday, March 06, 2007 11:50 AM
To: Konstadina Vlahogiani
Cc: Kocsis, Susie
Subject: RE: Event 113
Attachments: gpc5_5-mar-2007-16042566.pdf; alp120_5-mar-2007-16165816.pdf; asc10_5-mar-2007-16045969.pdf; asc16_5-mar-2007-16050798.pdf; asc18_5-mar-2007-16051593.pdf; asc21_5-mar-2007-16052375.pdf; asc24_5-mar-2007-16052991.pdf

Here you go.

From: Konstadina Vlahogiani [mailto:dvlahogi@envstd.com]
Sent: Monday, March 05, 2007 10:22 AM
To: Adam, Sherryl
Cc: Kocsis, Susie
Subject: RE: Event 113

Sherryl,

Could you please let me know when I can expect the calibrations for Event 113?

Susie and Guy are trying to finish their report this week.

Thanks,

Dina

From: Konstadina Vlahogiani
Sent: Monday, February 26, 2007 2:13 PM
To: 'Adam, Sherryl'
Cc: 'Kocsis, Susie'
Subject: Event 113

Sherryl,

For isotopic thorium: the calibration check for ALP 120 (analysis date 1/18/07) is missing.

For Ra-228: the background check for GPC 5 (analysis date 2/1/07) is missing.

For Ra-226: the calibration checks for detectors 10, 16, 18, 21, and 24 (analysis date 1/24/07) are missing.

Dina

notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify the sender immediately.

Konstadina Vlahogiani

From: Adam, Sherryl [SAdam@stl-inc.com]
Sent: Tuesday, March 06, 2007 11:50 AM
To: Konstadina Vlahogiani
Cc: Kocsis, Susie
Subject: RE: Event 113
Attachments: gpc5_5-mar-2007-16042566.pdf; alp120_5-mar-2007-16165816.pdf; asc10_5-mar-2007-16045969.pdf; asc16_5-mar-2007-16050798.pdf; asc18_5-mar-2007-16051593.pdf; asc21_5-mar-2007-16052375.pdf; asc24_5-mar-2007-16052991.pdf

Here you go.

From: Konstadina Vlahogiani [mailto:dvlahogi@envstd.com]
Sent: Monday, March 05, 2007 10:22 AM
To: Adam, Sherryl
Cc: Kocsis, Susie
Subject: RE: Event 113

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Sent: Monday, February 26, 2007 2:13 PM
To: 'Adam, Sherryl'
Cc: 'Kocsis, Susie'
Subject: Event 113

Sherryl,

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For Ra-228: the background check for GPC 5 (analysis date 2/1/07) is missing.

For Ra-226: the calibration checks for detectors 10, 16, 18, 21, and 24 (analysis date 1/24/07) are missing.

Dina

notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify the sender immediately.

Konstadina Vlahogiani

From: Adam, Sherryl [SAdam@stl-inc.com]
Sent: Tuesday, March 06, 2007 2:08 PM
To: Konstadina Vlahogiani
Cc: Kocsis, Susie
Subject: RE: Event 113
Attachments: gpc5_6-mar-2007-11023758.pdf

From: Konstadina Vlahogiani [mailto:dvlahogi@envstd.com]
Sent: Tuesday, March 06, 2007 10:06 AM
To: Adam, Sherryl
Cc: Kocsis, Susie
Subject: FW: Event 113

Sherryl,

For Ra-228 you sent me the efficiency check for gpc5. As I said in my email, I need the background check.

Dina

From: Adam, Sherryl [mailto:SAdam@stl-inc.com]
Sent: Tuesday, March 06, 2007 11:50 AM
To: Konstadina Vlahogiani
Cc: Kocsis, Susie
Subject: RE: Event 113

Here you go.

From: Konstadina Vlahogiani [mailto:dvlahogi@envstd.com]
Sent: Monday, March 05, 2007 10:22 AM
To: Adam, Sherryl
Cc: Kocsis, Susie
Subject: RE: Event 113

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Sent: Monday, February 26, 2007 2:13 PM
To: 'Adam, Sherryl'
Cc: 'Kocsis, Susie'
Subject: Event 113

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For Ra-228: the background check for GPC 5 (analysis date 2/1/07) is missing.

For Ra-226: the calibration checks for detectors 10, 16, 18, 21, and 24 (analysis date 1/24/07) are missing.

Dina

Confidentiality Notice: The information contained in this message is intended only for the use of the addressee, and may be confidential and/or privileged. If the reader of this message is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify the sender immediately.

RADIOLOGICAL FIELD DUPLICATE EVALUATION

REPLICATE ERROR RATIO (RER) LIMIT < 1.96

RER = ABS (SAMPLE ACT - DUPLICATE ACT) / SQRT [(TPU SAMPLE)2 + (TPU DUPLICATE)2]

Event 113

Samples: P-0812 and P-0815

Analyte	Sample Act	Sample TPU	Duplicate Act	Duplicate TPU	RER	Qualifier
alpha	7.36	4.3	8.52	4.3	0.191	
th-230	0.303	0.22	0.0954	0.12	0.828	

Sample Results Summary

Date: 06-Feb-07

STL Richland STLR

Ordered by Client Sample ID, Batch No.

Report No. : 34418

SDG No: 33442

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER2
000580	JMLA81AA	TH-228	0.115 +- 0.148	ND	pCi/sample	89%	0.247	
		TH-230	0.365 +- 0.238	=	pCi/sample	89%	0.195	
		TH-232	0.0276 +- 0.0705	ND	pCi/sample	89%	0.165	
000580	JMLA81AE	ALPHA	12.5 +- 5.27	=	pCi/sample	100%	4.49	
000580	JMLA81AC	RA-226	0.520 +- 0.298	=	pCi/sample	91%	0.312	
000580	JMLA82AD	RA-228	0.902 +- 1.04	ND	pCi/sample	88%	2.3	
P-0812	JMK811AA	TH-228	0.00000395 +- 0.168	ND	pCi/sample	95%	0.425	
		TH-230	0.303 +- 0.223	=	pCi/sample	95%	0.227	
		TH-232	-0.0378 +- 0.0929	ND	pCi/sample	95%	0.278	
P-0812	JMK811AE	ALPHA	7.36 +- 4.25	=	pCi/sample	100%	5.37	
P-0812	JMK811AC	RA-226	-0.0186 +- 0.422	ND	pCi/sample	101%	0.804	
P-0812	JMK812AD	RA-228	1.15 +- 1.19	ND	pCi/sample	86%	2.59	
P-0813	JMLA11AA	TH-228	0.0779 +- 0.366	ND	pCi/sample	44%	0.839	
		TH-230	0.224 +- 0.272	ND	pCi/sample	44%	0.448	
		TH-232	0.00000 +- 0.167	ND	pCi/sample	44%	0.448	
P-0813	JMLA11AE	ALPHA	5.02 +- 3.19	=	pCi/sample	100%	3.81	
P-0813	JMLA11AC	RA-226	0.269 +- 0.430	ND	pCi/sample	101%	0.745	
P-0813	JMLA12AD	RA-228	0.443 +- 0.956	ND	pCi/sample	93%	2.19	
P-0814	JMLA41AA	TH-228	0.186 +- 0.257	ND	pCi/sample	83%	0.446	
		TH-230	0.127 +- 0.185	ND	pCi/sample	83%	0.305	
		TH-232	-0.0254 +- 0.114	ND	pCi/sample	83%	0.305	
P-0814	JMLA41AE	ALPHA	10.2 +- 4.86	=	pCi/sample	100%	5.17	
P-0814	JMLA41AC	RA-226	-0.2010 +- 0.298	ND	pCi/sample	106%	0.655	
P-0814	JMLA42AD	RA-228	0.859 +- 1.16	ND	pCi/sample	88%	2.57	
P-0815	JMLA71AA	TH-228	0.164 +- 0.163	ND	pCi/sample	100%	0.201	
		TH-230	0.0954 +- 0.120	ND	pCi/sample	100%	0.163	
		TH-232	0 0204 +- 0.0709	ND	pCi/sample	100%	0.193	
P-0815	JMLA71AE	ALPHA	8.52 +- 4.33	=	pCi/sample	100%	4.52	
P-0815	JMLA71AC	RA-226	0.422 +- 0.357	ND	pCi/sample	106%	0.503	
P-0815	JMLA72AD	RA-228	0.325 +- 1.08	ND	pCi/sample	82%	2.54	

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V5.1 A2002

RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

= ERPIMS - Equal To, Analyte Detected

ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

Sample Results Summary

Date: 06-Feb-07

STL Richland STLR

Ordered by Client Sample ID, Batch No.

Report No. : 34418 **SDG No:** 33442

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER2
Number of Results:	30							

STL Richland RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

rptSTLRchSaSum
V5.1 A2002

QC Results Summary
STL Richland STLR

Ordered by QC Type, Batch No.

Date: 06-Feb-07

Report No. : 34418 **SDG No.:** 33442

QC Type	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC¦MDA
BLANK QC	JMN8F1AA	TH-228	0.00985 +- 0.0173	N	pCi/sample	95%			0.0331
		TH-230	0.00754 +- 0.0114	N	pCi/sample	95%			0.0226
		TH-232	0.00000 +- 0.00843	N	pCi/sample	95%			0.0226
BLANK QC	JMN8V1AA	ALPHA	0.000224 +- 0.00252	N	pCi/sample	100%			0.00646
BLANK QC	JMN851AA	RA-226	0.000186 +- 0.000442	N	pCi/sample	93%			0.000812
BLANK QC	JMN9F2AA	RA-228	0.102 +- 0.216	N	pCi/sample	99%			0.491
LCS	JMN8V1AC	ALPHA	0.167 +- 0.0437	=	pCi/sample	100%	93%	-0.1	0.00711
LCS	JMN851AC	RA-226	0.00728 +- 0.00188	=	pCi/sample	104%	79%	-0.2	0.000524
LCS	JMN9F2AC	RA-228	5.49 +- 0.825	=	pCi/sample	86%	107%	0.1	0.542

Number of Results: 9

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Bias - (Result/Expected)-1 as defined by ANSI N13.30.
= ERPIMS - Equal To, Analyte Detected
ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 06-Feb-07

Lab Name: STL Richland **SDG:** 33442 **Collection Date:** 12/5/2006 12:50:00 PM

Lot-Sample No.: J7A090287-5 **Report No. :** 34418 **Received Date:** 1/8/2007 10:00:00 AM

Client Sample ID: 000580 **COC No. :** **Matrix:** FILTER AIR

Yerington Mine - Event #113

Ordered by Client Sample ID, Batch No

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7011219	**Work Order:** JMLA81AA			**Report DB ID:** 9JMLA810								
TH-228	0.115	ND	0.15	0.15	0.247	pCi/sample	89%	*0.47*	1/17/07 10:04 p	1.0	0.08345	ISOTH
						0.0749	1.0	*(1.6)*		Sample	Sample	ALP118
TH-230	0.365	=	0.23	0.24	0.195	pCi/sample	89%	*(1.9)*	1/17/07 10:04 p	1.0	0.08345	ISOTH
						0.0507	1.0	*(3.1)*		Sample	Sample	ALP118
TH-232	0.0276	ND	0.070	0.070	0.165	pCi/sample	89%	*0.17*	1/17/07 10:04 p	1.0	0.08345	ISOTH
						0.0359	1.0	*0.78*		Sample	Sample	ALP118
Batch: 7011221	**Work Order:** JMLA81AE			**Report DB ID:** 9JMLA810								
ALPHA	12.5	=	4.4	5.3	4.49	pCi/sample	100%	*(2.8)*	1/23/07 07:52 p	1.0	0.02094	E900.0
						1.81	20.0	*(4.7)*		Sample	Sample	GPC10F
Batch: 7011225	**Work Order:** JMLA81AC			**Report DB ID:** 9JMLA810								
RA-226	0.520	=	0.28	0.30	0.312	pCi/sample	91%	*(1.7)*	1/24/07 02:24 p	1.0	0.25066	E903.1
						0.118	1.0	*(3.5)*		Sample	Sample	ASCJMB
Batch: 7029198	**Work Order:** JMLA82AD			**Report DB ID:** 9JMLA820								
RA-228	0.902	ND	1.0	1.0	2.3	pCi/sample	88%	*0.39*	2/2/07 06:06 a	1.0	0.24979	E904.0
						1.05	3.1	*(1.7)*		Sample	Sample	GPC1D

Number of Results: 6

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 06-Feb-07

Lab Name: STL Richland **SDG:** 33442 **Collection Date:** 12/5/2006 12:25:00 PM

Lot-Sample No.: J7A090287-1 **Report No. :** 34418 **Received Date:** 1/8/2007 10:00:00 AM

Client Sample ID: P-0812 **COC No. :** **Matrix:** FILTER AIR

Yerington Mine - Event #113

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7011219	**Work Order:** JMK811AA			**Report DB ID:** 9JMK8110								
TH-228	0.00000395	ND	0.17	0.17	0.425	pCi/sample	95%	*0.*	1/17/07 10:03 p	1.0	0.07881	ISOTH
						0.159	1.0	*0.*		Sample	Sample	ALP113
TH-230	0.303	=	0.22	0.22	0.227	pCi/sample	95%	*(1.3)*	1/17/07 10:03 p	1.0	0.07881	ISOTH
						0.0622	1.0	*(2.7)*		Sample	Sample	ALP113
TH-232	-0.0378	ND	0.093	0.093	0.278	pCi/sample	95%	*-0.14*	1/17/07 10:03 p	1.0	0.07881	ISOTH
						0.088	1.0	*-0.81*		Sample	Sample	ALP113
Batch: 7011221	**Work Order:** JMK811AE			**Report DB ID:** 9JMK8110								
ALPHA	7.36	=	3.9	4.3	5.37	pCi/sample	100%	*(1.4)*	1/23/07 07:52 p	1 0	0.01971	E900.0
						2.21	20.0	*(3.5)*		Sample	Sample	GPC10A
Batch: 7011225	**Work Order:** JMK811AC			**Report DB ID:** 9JMK8110								
RA-226	-0.0186	ND	0.42	0.42	0.804	pCi/sample	101%	*-0.02*	1/24/07 02:00 p	1.0	0.23554	E903.1
						0.365	1.0	*-0.09*		Sample	Sample	ASC3HA
Batch: 7029198	**Work Order:** JMK812AD			**Report DB ID:** 9JMK8120								
RA-228	1.15	ND	1.2	1.2	2.59	pCi/sample	86%	*0.45*	2/2/07 06:05 a	1.0	0.23579	E904.0
						1.18	3.1	*(1.9)*		Sample	Sample	GPC7A

Number of Results: 6

Comments:

STL Richland
rptSTLRchSample
V5.1 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
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FORM I

SAMPLE RESULTS

Date: 06-Feb-07

Lab Name: STL Richland **SDG:** 33442 **Collection Date:** 12/5/2006 12:10:00 PM

Lot-Sample No.: J7A090287-2 **Report No. :** 34418 **Received Date:** 1/8/2007 10:00:00 AM

Client Sample ID: P-0813 **COC No. :** **Matrix:** FILTER AIR

Yerington Mine - Event #113 Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7011219	**Work Order:** JMLA11AA			**Report DB ID:** 9JMLA110								
TH-228	0.0779	ND	0.37	0.37	0.839	pCi/sample	44%	*0.09*	1/17/07 10:04 p	1.0	0.08298	ISOTH
						0.314	1.0	*0.43*		Sample	Sample	ALP114
TH-230	0.224	ND	0.27	0.27	0.448	pCi/sample	44%	*0.5*	1/17/07 10:04 p	1.0	0.08298	ISOTH
						0.123	1.0	*(1.6)*		Sample	Sample	ALP114
TH-232	0.00000	ND	0.0000	0.17	0.448	pCi/sample	44%	*0.*	1/17/07 10:04 p	1.0	0.08298	ISOTH
						0.123	1.0	*0.*		Sample	Sample	ALP114
Batch: 7011221	**Work Order:** JMLA11AE			**Report DB ID:** 9JMLA110								
ALPHA	5.02	=	3.0	3.2	3.81	pCi/sample	100%	*(1.3)*	1/23/07 07:52 p	1.0	0.02076	E900.0
						1.44	20.0	*(3.2)*		Sample	Sample	GPC10B
Batch: 7011225	**Work Order:** JMLA11AC			**Report DB ID:** 9JMLA110								
RA-226	0.269	ND	0.43	0.43	0.745	pCi/sample	101%	*0.36*	1/24/07 01:53 p	1.0	0.2492	E903.1
						0.338	1.0	*(1.2)*		Sample	Sample	ASC6RA
Batch: 7029198	**Work Order:** JMLA12AD			**Report DB ID:** 9JMLA120								
RA-228	0.443	ND	0.78	0.96	2.19	pCi/sample	93%	*0.2*	2/2/07 06:05 a	1.0	0.2493	E904.0
						0.997	3.1	*0.93*		Sample	Sample	GPC7B

Number of Results: 6

Comments:

STL Richland
rptSTLRchSample
V5.1 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
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FORM I

SAMPLE RESULTS

Date: 06-Feb-07

Lab Name: STL Richland **SDG:** 33442 **Collection Date:** 12/5/2006 12:45:00 PM

Lot-Sample No.: J7A090287-3 **Report No. :** 34418 **Received Date:** 1/8/2007 10:00:00 AM

Client Sample ID: P-0814 **COC No. :** **Matrix:** FILTER AIR

Yerington Mine - Event #113 Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7011219	**Work Order:** JMLA41AA			**Report DB ID:** 9JMLA410								
TH-228	0.186	ND	0.25	0.26	0.446	pCi/sample	83%	*0.42*	1/17/07 10:04 p	1.0	0.08115	ISOTH
						0.151	1.0	*(1.4)*		Sample	Sample	ALP116
TH-230	0.127	ND	0.18	0.18	0.305	pCi/sample	83%	*0.42*	1/17/07 10:04 p	1.0	0.08115	ISOTH
						0.0836	1.0	*(1.4)*		Sample	Sample	ALP116
TH-232	-0.0254	ND	0.11	0.11	0.305	pCi/sample	83%	*-0.08*	1/17/07 10:04 p	1.0	0.08115	ISOTH
						0.0836	1.0	*-0.45*		Sample	Sample	ALP116
Batch: 7011221	**Work Order:** JMLA41AE			**Report DB ID:** 9JMLA410								
ALPHA	10.2	=	4.2	4.9	5.17	pCi/sample	100%	*(2.)*	1/23/07 07:52 p	1.0	0.02024	E900.0
						2.13	20.0	*(4.2)*		Sample	Sample	GPC10C
Batch: 7011225	**Work Order:** JMLA41AC			**Report DB ID:** 9JMLA410								
RA-226	-0.2010	ND	0.29	0.30	0.655	pCi/sample	106%	*-0.31*	1/24/07 02:00 p	1.0	0.24214	E903.1
						0.287	1.0	*-(1.4)*		Sample	Sample	ASCGSA
Batch: 7029198	**Work Order:** JMLA42AD			**Report DB ID:** 9JMLA420								
RA-228	0.859	ND	1.2	1.2	2.57	pCi/sample	88%	*0.33*	2/2/07 06:05 a	1.0	0.24196	E904.0
						1.18	3.1	*(1.5)*		Sample	Sample	GPC1B

Number of Results: 6

Comments:

STL Richland
rptSTLRchSample
V5.1 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 06-Feb-07

Lab Name: STL Richland **SDG:** 33442 **Collection Date:** 12/5/2006 12:30:00 PM

Lot-Sample No.: J7A090287-4 **Report No. :** 34418 **Received Date:** 1/8/2007 10:00:00 AM

Client Sample ID: P-0815 **COC No. :** **Matrix:** FILTER AIR

Yerington Mine - Event #113

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7011219	**Work Order:** JMLA71AA			**Report DB ID:** 9JMLA710								
TH-228	0.164	ND	0.16	0.16	0.201	pCi/sample	100%	*0.81*	1/17/07 10:04 p	1.0	0.08039	ISOTH
						0.0523	1.0	*(2.)*		Sample	Sample	ALP117
TH-230	0.0954	ND	0.12	0.12	0.163	pCi/sample	100%	*0.58*	1/17/07 10:04 p	1.0	0.08039	ISOTH
						0.0354	1.0	*(1.6)*		Sample	Sample	ALP117
TH-232	0.0204	ND	0.071	0.071	0.193	pCi/sample	100%	*0.11*	1/17/07 10:04 p	1.0	0.08039	ISOTH
						0.0501	1.0	*0.58*		Sample	Sample	ALP117
Batch: 7011221	**Work Order:** JMLA71AE			**Report DB ID:** 9JMLA710								
ALPHA	8.52	=	3.8	4.3	4.52	pCi/sample	100%	*(1.9)*	1/23/07 07:52 p	1.0	0.02008	E900.0
						1.8	20.0	*(3.9)*		Sample	Sample	GPC10D
Batch: 7011225	**Work Order:** JMLA71AC			**Report DB ID:** 9JMLA710								
RA-226	0.422	ND	0.34	0.36	0.503	pCi/sample	106%	*0.84*	1/24/07 02:01 p	1.0	0.24099	E903.1
						0.2	1.0	*(2.4)*		Sample	Sample	ASCASC
Batch: 7029198	**Work Order:** JMLA72AD			**Report DB ID:** 9JMLA720								
RA-228	0.325	ND	0.89	1.1	2.54	pCi/sample	82%	*0.13*	2/2/07 06:06 a	1.0	0.24067	E904.0
						1.15	3.1	*0.6*		Sample	Sample	GPC1C

Number of Results: 6

Comments:

STL Richland
rptSTLRchSample
V5.1 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II

BLANK RESULTS

Date: 06-Feb-07

Lab Name: STL Richland **SDG:** 33442

Lot-Sample No.: J7A110000-219 **Report No. :** 34418 **Matrix:** FILTER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7011219	**Work Order:** JMN8F1AA			**Report DB ID:** JMN8F1AB								
TH-228	0.00985	ND	0.017	0.017	0.0331	pCi/sample	95%	0.3	1/18/07 09:42 a	1.0	1.0	ISOTH
					0.0112	1.0		(1.1)		Sample	Sample	ALP119
TH-230	0.00754	ND	0.011	0.011	0.0226	pCi/sample	95%	0.33	1/18/07 09:42 a	1.0	1.0	ISOTH
					0.0062	1.0		(1.3)		Sample	Sample	ALP119
TH-232	0.00000	ND	0.0000	0.0084	0.0226	pCi/sample	95%	0.	1/18/07 09:42 a	1.0	1.0	ISOTH
					0.0062	1.0		0.		Sample	Sample	ALP119

Number of Results: 3

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II

BLANK RESULTS

Date: 06-Feb-07

Lab Name: STL Richland **SDG:** 33442

Lot-Sample No.: J7A110000-221 **Report No. :** 34418 **Matrix:** FILTER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7011221	**Work Order:** JMN8V1AA			**Report DB ID:** JMN8V1AB								
ALPHA	0.000224	ND	0.0025	0.0025	0.00646	pCi/sample	100%	0.03	1/24/07 05:03 p	1.0	12.59	E900.0
					0.00247	20.0		0.18		Sample	Sample	GPC10B

Number of Results: 1

Comments:

STL Richland
rptSTLRchBlank
V5.1 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II

BLANK RESULTS

Date: 06-Feb-07

Lab Name: STL Richland **SDG:** 33442

Lot-Sample No.: J7A110000-225 **Report No. :** 34418 **Matrix:** FILTER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
Batch: 7011225	**Work Order:** JMN851AA			**Report DB ID:** JMN851AB								
RA-226	0.000186	ND	0.00044	0.00044	0.000812	pCi/sample	93%	0.23	1/24/07 04:19 p	1.0	152.17	E903.1
					0.000343	1.0		0.84		Sample	Sample	ASCMRA

Number of Results: 1

Comments:

STL Richland
rptSTLRchBlank
V5.1 A2002

MDC|MDA,Lc - Detection, Decision Level based on Instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II

BLANK RESULTS

Date: 06-Feb-07

Lab Name: STL Richland **SDG:** 33442

Lot-Sample No.: J7A110000-229 **Report No. :** 34418 **Matrix:** FILTER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7029198	Work Order:	JMN9F2AA		Report DB ID:	JMN9F2AB							
RA-228	0.102	ND	0.18	0.22	0.491	pCi/sample	99%	0.21	2/2/07 06:06 a	1.0	1.0	E904.0
					0.224	1.0		0.94		Sample	Sample	GPC5C

Number of Results: 1

Comments:

STL Richland
rptSTLRchBlank
V5.1 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II

LCS RESULTS

Date: 06-Feb-07

Lab Name: STL Richland **SDG:** 33442

Lot-Sample No.: J7A110000-221 **Report No. :** 34418 **Matrix:** FILTER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 7011221	**Work Order:** JMN8V1AC			**Report DB ID:** JMN8V1CS									
ALPHA	0.167	=	0.019	0.044	0.00711	pCi/sample	100.00%	0.179	0.0056	93%	1/24/07 05:03 p	12.55	E900.0
						Rec Limits:				-0.1		Sample	GPC10A

Number of Results: 1

Comments:

STL Richland
rptSTLRchLcs
V5.1 A2002

Bias - (Result/Expected)-1 as defined by ANSI N13.30.
= ERPIMS - Equal To, Analyte Detected

FORM II

LCS RESULTS

Date: 06-Feb-07

Lab Name: STL Richland **SDG:** 33442

Lot-Sample No.: J7A110000-225 **Report No. :** 34418 **Matrix:** FILTER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 7011225	**Work Order:** JMN851AC			**Report DB ID:** JMN851CS									
RA-226	0.00728	=	0.0011	0.0019	0.000524	pCi/sample	104.34%	0.00919	0.00014	79%	1/24/07 04:20 p	150.1	E903.1
						Rec Limits:		70.	130.	-0.2		Sample	ASCQMB

Number of Results: 1

Comments:

STL Richland
rptSTLRchLcs
V5.1 A2002

Bias - (Result/Expected)-1 as defined by ANSI N13.30.
= ERPIMS - Equal To, Analyte Detected

FORM II

LCS RESULTS

Date: 06-Feb-07

Lab Name: STL Richland **SDG:** 33442

Lot-Sample No.: J7A110000-229 **Report No. :** 34418 **Matrix:** FILTER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 7029198	**Work Order:** JMN9F2AC			**Report DB ID:** JMN9F2CS									
RA-228	5.49	=	0.54	0.83	0.542	pCi/sample	86.22%	5.15	0.16	107%	2/2/07 06:06 a	1.0	E904.0
							Rec Limits:	70.	130.	0.1		Sample	GPC5D

Number of Results. 1

Comments:

STL Richland
rptSTLRchLcs
V5.1 A2002

Bias - (Result/Expected)-1 as defined by ANSI N13.30.
= ERPIMS - Equal To, Analyte Detected

CHAIN OF CUSTODY

BROWN AND CALDWELL J7A090287 33442 **CHAIN OF CUSTODY RECORD** COC No.________

STL RICHLAND

Due 02-6-07

☐ 3264 Goni Road / Suite 153
Carson City, NV 89706
775-883-4118 / FAX 775-883-5108

☐ 4425 W. Spring Mountain Road / Suite 225
Las Vegas, NV 89102
702-938-4080 / FAX 702-938-4082

☐ 201 East Washington Street / Suite 500
Phoenix, AZ 85004
602-567-4000 / FAX 602-567-4001

PROJECT NAME: [illegible]

PROJECT NUMBER: [illegible]

LABORATORY NAME & ADDRESS: [illegible]

SACRAMENTO LOT # G6L200192

1/6 OF THE EXPOSED FILTER WAS UTILIZED FOR THE METALS & SULFATE ANALYSES

LINE NO.	SAMPLE – I.D.	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	FIELD FILTERED	QC – REQ	~~TAT~~	SAMPLING METHOD	DEPTH (FT.) BEGIN ---- END	PID READING (ppm)
01	[illegible]	[illegible]	[illegible]	[illegible]	1	8x10 Filter	NONE	A	PM-10, Gross Alpha, Th 228, 230, Ra 226, 228, Metals (Al, As, Cd, Cr, Co, Cu, Mn, Ni), Sulfate JMK81			[illegible]		----	
02	[illegible]		[illegible]		1	8x10 Filter	NONE	A	PM-10, Gross Alpha, Th 228, 230, Ra 226, 228, Metals (Al, As, Cd, Cr, Co, Cu, Mn, Ni), Sulfate JMLA1 ~~JMK~~ SS			[illegible]		----	
03	[illegible]		12:45		1	8x10 Filter	NONE	A	PM-10, Gross Alpha, Th 228, 230, Ra 226, 228, Metals (Al, As, Cd, Cr, Co, Cu, Mn, Ni), Sulfate JMLA4			[illegible]		----	
04	[illegible]		[illegible]		1	8x10 Filter	NONE	A	PM-10, Gross Alpha, Th 228, 230, Ra 226, 228, Metals (Al, As, Cd, Cr, Co, Cu, Mn, Ni), Sulfate JMLA7			[illegible]		----	
05	[illegible]		[illegible]		1	8x10 Filter	NONE	A	TSP, Gross Alpha, Th 228, 230, Ra 226, 228, Metals (Al, As, Cd, Cr, Co, Cu, Mn, Ni), Sulfate JMLA8			[illegible]		----	
06														----	
07	[illegible]	[illegible]	[illegible]	[illegible]										----	
08														----	
09														----	
10														----	

COLLECTED & RELEASED BY:	DATE	TIME	COOLER I.D.:			COMMENTS (see note on back):
[illegible]	[illegible]	[illegible]				
RECEIVED BY: [illegible]	DATE [illegible]	TIME [illegible]	RELINQUISHED BY:	DATE	TIME	
			Steve Valmores	1/5/07	1600	
S. Smith	01-08-07	1000				
RECORD RETURNED BY:	DATE	TIME				
COURIER:			SHIPPING NUMBER:			

DISTRIBUTION: WHITE – PROJECT FILE • CANARY – LAB RECEIPT • PINK – DATA MANAGEMENT • GOLDENROD – FIELD

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK.

SEVERN TRENT STL

Sample Checklist List

Date/Time Received 1/8/07 10:00

Client BRC SDG # 33442 NA [ ] SAF # ____ X

Work Order Number J7A090287 Chain of Custody # Event 113

Shipping Container ID ____ Air Bill # ____

1. Custody Seals on shipping container intact? NA [ ] Yes ✓ No [ ]
2. Custody Seals dated and signed? NA [ ] Yes ✓ No [ ]
3. Chain of Custody record present? Yes ✓ No [ ]
4. Cooler temperature ____ NA ✓ 5. Vermiculite packing material is NA ✓
6. Number of samples in shipping container 5
7. Sample holding times exceeded? NA [/] Yes [ ] No [ ]
8. Samples have:
   ____ tape
   ____ custody seals
   ____ hazard labels
   ✓ appropriate sample labels
9. Samples are:
   ✓ in good condition
   ____ broken
   ____ leaking
   ____ have air bubbles (Only for samples requiring head space)
10. Sample pH taken? NA [✓] Filter pH<2 [ ] pH>2 [X] CED 1-8-07 pH>9 [ ]
11. Sample Location, Sample Collector Listed?* Yes ✓ No [ ]
    *For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [ ] No ✓
13. Description of anomalies (include sample numbers): ____

Sample Custodian: Eric Dalby Date: 1/8/07 10:00

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on ____ by ____ Person contacted ____

[ ] No action necessary, process as is

Project Manager ____ Date ____

LS-023 9/03, Rev. 5

THORIUM

SAMPLE AND QC DATA

SEVERN STL

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

1/23/2007 3:39:34 PM

Lot No., Due Date:	**J7A090287,J7A100115,J7A100118; 02/06/2007**
Client, Site:	**536403; AIR MONITORING Yerington Mine**
QC Batch No., Method Test:	**7011219; RTHISO Thlso by ALP**
SDG, Matrix:	**33442,33443,33444; FILTER**

1.0 COC

Item	Question	Response
1.1	Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	Yes ✓ No N/A

2.0 QC Batch

Item	Question	Response
2.1	Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	Yes ✓ No N/A
2.2	Are the QC appropriate for the analysis included in the batch?	Yes ✓ No N/A
2.3	Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	Yes ✓ No N/A
2.4	Does the Worksheets include a Tracer Vial label for each sample?	Yes ✓ No N/A

3.0 QC & Samples

Item	Question	Response
3.1	Is the blank results, yield, and MDA within contract limits?	Yes ✓ No N/A
3.2	Is the LCS result, yield, and MDA within contract limits?	Yes No ✓ N/A
3.3	Are the MS/MSD results, yields, and MDA within contract limits?	Yes No N/A ✓
3.4	Are the duplicate result, yields, and MDAs within contract limits?	Yes No N/A ✓
3.5	Are the sample yields and MDAs within contract limits?	Yes ✓ No N/A

4.0 Raw Data

Item	Question	Response
4.1	Were results calculated in the correct units?	Yes ✓ No N/A
4.2	Were analysis volumes entered correctly?	Yes ✓ No N/A
4.3	Were Yields entered correctly?	Yes No N/A ✓
4.4	Were spectra reviewed/meet contractual requirements?	Yes ✓ No N/A
4.5	Were raw counts reviewed for anomalies?	Yes ✓ No N/A

5.0 Other

Item	Question	Response
5.1	Are all nonconformances included and noted?	Yes ✓ No N/A
5.2	Are all required forms filled out?	Yes ✓ No N/A
5.3	Was the correct methodology used?	Yes ✓ No N/A
5.4	Was transcription checked?	Yes ✓ No N/A
5.5	Were all calculations checked at a minimum frequency?	Yes ✓ No N/A
5.6	Are worksheet entries complete and correct?	Yes ✓ No N/A

6.0 Comments on any No response:

See NCM 7-09333

First Level Review [signature] **Date** 1-23-07

STL RICHLAND

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 7011219

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?		✓	
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?			✓
C. Other 1. Are all Nonconformances included and noted?	✓		
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: See NCM

Second Level Review: Sheryl A Adam Date: 1-25-07

1/15/2007 12.30:41 PM

Sample Preparation/Analysis

Balance Id:1120373922

536403, Brown and Caldwell Brown & Caldwell

9N Thlso PrpRc5016, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
01 STANDARD TEST SET

Pipet #: _____

AnalyDueDate: 02/05/2007

Sep1 DT/Tm Tech:

Batch: 7011219 FILTER pCi/sampl PM, Quote: SA , 63174

SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: WoodT

STL RICHLAND

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
8 **JMLT7-1-AA** J7A100115-3-SAMP 12/11/2006 12:15	0.833sa,g	527.80sa,g	50.28g,in	0.0794g	THTF0944 12/18/06,pd 10/04/04,r	500				
		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
9 **JMLT8-1-AA** J7A100115-4-SAMP 12/11/2006 11:45	0.833sa,g	503.04sa,g	50.21g,in	0.0831g	THTF0945 12/18/06,pd 10/04/04,r					
		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
10 **JMLVA-1-AA** J7A100115-5-SAMP 12/11/2006 12:20	0.833g	511.47g	50.36g,in	0.082g	THTF0946 12/18/06,pd 10/04/04,r	1/15/07				
		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
11 **JMLVW-1-AA** J7A100118-1-SAMP 12/13/2006 12:10	0.833g	502.79g	50.39g,in	0.0835g	THTF0947 12/18/06,pd 10/04/04,r					
		AmtRec: FILTER	#Containers: 1				Scr:	Alpha.		Beta.
12 **JMLV3-1-AA** J7A100118-2-SAMP 12/13/2006 12:43	0.833sa,g	507.51sa,g	50.55g,in	0.083g	THTF0948 12/18/06,pd 10/04/04,r					
		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
13 **JMLV5-1-AA** J7A100118-3-SAMP 12/13/2006 13:15	0.833sa,g	510.86sa,g	50.31g,in	0.082g	THTF0949 12/18/06,pd 10/04/04,r					
		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
14 **JMLV8-1-AA** J7A100118-4-SAMP 12/13/2006 13:18	0.833sa,g	504.92sa,g	50.19g,in	0.0828g	THTF0950 12/18/06,pd 10/04/04,r					
		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:

27

STL RICHLAND

1/15/2007 12:30:39 PM

Sample Preparation/Analysis

Balance Id:1120373922

536403, Brown and Caldwell , Brown & Caldwell

9N ThIso PrpRc5016, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
01 STANDARD TEST SET

Pipet #: _____

AnalyDueDate: 02/05/2007

Sep1 DT/Tm Tech:

Batch: 7011219 FILTER pCi/sampl PM, Quote: SA , 63174

SEQ Batch, Test: None All Tests: 7011219 9NS1, 7011221 BAS7, 7011225 BXTE, 7011229 BXTF,

Sep2 DT/Tm Tech:

Prep Tech: WoodT

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 **JMK81-1-AA** J7A090287-1-SAMP 12/05/2006 12:25	0.833sa,g	531.15sa,g	50.25g,in	0.0788g	THTF0937 12/18/06,pd 10/04/04,r	500		Scr: Alpha: Beta:		
		AmtRec: FILTER		#Containers: 1						
2 **JMLA1-1-AA** J7A090287-2-SAMP 12/05/2006 12:10	0.833sa,g	502.71sa,g	50.08g,in	0.083g	THTF0938 12/18/06,pd 10/04/04,r			Scr: Alpha: Beta:		
		AmtRec: FILTER		#Containers: 1						
3 **JMLA4-1-AA** J7A090287-3-SAMP 12/05/2006 12:45	0.833sa,g	516.54sa,g	50.32g,in	0.0811g	THTF0939 12/18/06,pd 10/04/04,r			Scr: Alpha: Beta:		
		AmtRec: FILTER		#Containers: 1						
4 **JMLA7-1-AA** J7A090287-4-SAMP 12/05/2006 12:30	0.833sa,g	519.32sa,g	50.12g,in	0.0804g	THTF0940 12/18/06,pd 10/04/04,r	1/15/07 300		Scr: Alpha: Beta:		
		AmtRec: FILTER		#Containers: 1						
5 **JMLA8-1-AA** J7A090287-5-SAMP 12/05/2006 12:50	0.833sa,g	500.78sa,g	50.17g,in	0.0835g	THTF0941 12/18/06,pd 10/04/04,r			Scr: Alpha: Beta:		
		AmtRec: FILTER		#Containers: 1						
6 **JMLT2-1-AA** J7A100115-1-SAMP 12/11/2006 11:40	0.833sa,g	524.49sa,g	50.25g,in	0.0798g	THTF0942 12/18/06,pd 10/04/04,r			Scr: Alpha: Beta:		
		AmtRec: FILTER		#Containers: 1						
7 **JMLT6-1-AA** J7A100115-2-SAMP 12/11/2006 12:00	0.833sa,g	532.31sa,g	50.10g,in	0.0784g	THTF0943 12/18/06,pd 10/04/04,r			Scr: Alpha: Beta:		
		AmtRec: FILTER		#Containers: 1						

STL RICHLAND

1/15/2007 12:30:41 PM

Sample Preparation/Analysis

Balance Id:1120373922

536403, Brown and Caldwell , Brown & Caldwell

9N ThIso PrpRc5016, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
01 STANDARD TEST SET

Pipet #: _____

AnalyDueDate: 02/05/2007

Sep1 DT/Tm Tech:

Batch: 7011219 FILTER pCi/sampl PM, Quote: SA , 63174

SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: WoodT

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
15 JMLV9-1-AA J7A100118-5-SAMP 12/13/2006 13:21	0.833sa,g	511.81sa,g	50.14g,in AmtRec: FILTER	0.0816g #Containers: 1	THTF0951 12/18/06,pd 10/04/04,r	500 Scr:		Alpha:		Beta:
16 JMN8F-1-AA-B J7A110000-219-BLK 12/05/2006 12:25			50.31g,in AmtRec:	50.31g #Containers: 1	THTF0952 12/18/06,pd 10/04/04,r	1/15/07 800 Scr:		Alpha:		Beta:
17 JMN8F-1-AC-C J7A110000-219-LCS 12/05/2006 12:25			50.04g,in AmtRec:	50.04g #Containers: 1	THTE0183 11/28/06,pd 10/04/04,r	J Scr:		Alpha:		Beta:

Comments:

All Clients for Batch:
536403, Brown and Caldwell Brown & Caldwell , SA , 63174

JMK811AA-SAMP Constituent List:

Th-228	RDL:1	pCi/sam	LCL:	UCL:	RPD:	Th-230	RDL:1	pCi/sam	LCL:	UCL:	RPD:
Th-232	RDL:1	pCi/sam	LCL:	UCL:	RPD:	Th-234	RDL:	pCi/sam	LCL:20	UCL:115	RPD:20

JMN8F1AA-BLK:

Th-228	RDL:1	pCi/sam	LCL:	UCL:	RPD:	Th-230	RDL:1	pCi/sam	LCL:	UCL:	RPD:
Th-232	RDL:1	pCi/sam	LCL:	UCL:	RPD:	Th-234	RDL:	pCi/sam	LCL:20	UCL:115	RPD:20

JMN8F1AC-LCS:

Th-230	RDL:1	pCi/sam	LCL:70	UCL:130	RPD:20	Th-234	RDL:	pCi/sam	LCL:20	UCL:115	RPD:20

JMK811AA-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JMN8F1AA-BLK:

29

Clouseau
Nonconformance Memo

SEVERN TRENT SERVICES

NCM #: **10-09333**
NCM Initiated By: Pam Anderson
Date Opened: 01/23/2007
Date Closed:

Classification: **Deficiency**
Status: **GLREVIEW**
Production Area: Environmental - Prep
Tests: Thlso by ALP
Lot #'s (Sample #'s): J7A090287 (1,2,3,4,5), J7A100115 (1,2,3,4,5), J7A100118 (1,2,3,4,5), J7A110000 (219),
QC Batches: 7011219

Nonconformance: Technician Error
Subcategory: Laboratory error: prep error

Problem Description / Root Cause

Name	Date	Description
Pam Anderson	01/23/2007	This Th in filter batch has no LCS in it. A tracer was added to the LCS sample instead of a spike. The process has been shown to be in control. The data will be accepted without the LCS.

Corrective Action

Name	Date	Corrective Action
Pam Anderson	01/23/2007	Note in case narrative.

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note	Response	Response Note

Quality Assurance Verification

Verified By	Due Date	Status	Notes
		This section not yet completed by QA.	

Approval History

Date Approved	Approved By	Position

ICOC Fraction Transfer/Status Report

ByDate: 1/23/2006, 1/28/2007, Batch: '7011219', User: *ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting			Comments
7011219							
AC			CalcC	WoodT	1/15/2007 3:28:33 PM		
SC				wagarr	isBatched	1/11/2007 11:25.28 AM	ICOC_RADCALC v4.8 26
SC				WoodT	Prep1C	1/15/2007 3:28:33 PM	RICH-RC-5016 REVISION 5
SC				HarveyK	Sep1C	1/16/2007 5:39:41 PM	RICH-RC-5087 REV0
SC				FABREM	Sep2C	1/17/2007 4:14:19 PM	RICH-RC-5039 REVISION 5
SC				FABREM	Sep2C	1/17/2007 4:14:19 PM	RICH-RC-5039 REVISION 5
SC				DAWKINSO	InCnt1	1/17/2007 4:28:31 PM	RICH-RD-0008 REVISION 4
SC				BlackCL	CalcC	1/19/2007 5:27:44 AM	RICH-RD-0008 REVISION 4
AC				HarveyK	1/16/2007 5:39:41 PM		
AC				FABREM	1/17/2007 4:14:19 PM		
AC				DAWKINSO	1/17/2007 4:28:31 PM		
AC				BlackCL	1/19/2007 5:27:44		

AC: Accepting Entry; SC: Status Change

1/23/2007 3:32:07 PM

Rpt DB Transfer log (Batch Results)

SDG or Batch / Isotope	Rpt Db Id / Method	RTst	Qc	LotSample / Analysis Date	Client Id / Result	Matrix / Cnt Uncert	Received Date / Tot Uncert	MDA	Sample Date / Units	expected	Yield	Volumes
33442	**9JMK8110**			**J7A0902871**	P-0812	FILTER	1/8/2007 10:00:00		12/5/2006 12:25:00 PM			
TH-228	9NS1	0		1/17/2007 10:03:53 PM	**3.9481E-06**	8.376E-02	8.376E-02	**4.25E-01**	PCI/SA	0.953	1.0E+0	7.881E-2
TH-230	9NS1	0		1/17/2007 10:03:53 PM	**3.0258E-01**	1.086E-01	1.116E-01	2.269E-01	PCI/SA	0.953	1.0E+0	7.881E-2
TH-232	9NS1	0		1/17/2007 10:03:53 PM	**-3.7821E-02**	4.632E-02	4.643E-02	2.784E-01	PCI/SA	0.953	1.0E+0	7.881E-2
33442	**9JMLA110**			**J7A0902872**	P-0813	FILTER	1/8/2007 10:00:00		12/5/2006 12:10:00 PM			
TH-228	9NS1	0		1/17/2007 10:04:06 PM	**7.7868E-02**	1.828E-01	1.829E-01	8.388E-01	PCI/SA	0.438	1.0E+0	3.298E-2
TH-230	9NS1	0		1/17/2007 10:04:06 PM	**2.2391E-01**	1.346E-01	1.362E-01	4.477E-01	PCI/SA	0.438	1.0E+0	3.298E-2
TH-232	9NS1	0		1/17/2007 10:04:06 PM	**0.0E+00**	0.0E+00	8.345E-02	4.477E-01	PCI/SA	0.438	1.0E+0	3.298E-2
33442	**9JMLA410**			**J7A0902873**	P-0814	FILTER	1/8/2007 10:00:00		12/5/2006 12:45:00 PM			
TH-228	9NS1	0		1/17/2007 10:04:25 PM	**1.8576E-01**	1.273E-01	1.283E-01	4.461E-01	PCI/SA	0.833	1.0E+0	3.115E-2
TH-230	9NS1	0		1/17/2007 10:04:25 PM	**1.271E-01**	9.165E-02	9.234E-02	3.05E-01	PCI/SA	0.833	1.0E+0	3.115E-2
TH-232	9NS1	0		1/17/2007 10:04:25 PM	**-2.5423E-02**	5.684E-02	5.689E-02	3.05E-01	PCI/SA	0.833	1.0E+0	3.115E-2
33442	**9JMLA710**			**J7A0902874**	P-0815	FILTER	1/8/2007 10:00:00		12/5/2006 12:30:00 PM			
TH-228	9NS1	0		1/17/2007 10:04:10 PM	**1.636E-01**	8.016E-02	8.133E-02	2.01E-01	PCI/SA	0.996	1.0E+0	3.039E-2
TH-230	9NS1	0		1/17/2007 10:04:10 PM	**9.5387E-02**	5.94E-02	5.994E-02	1.632E-01	PCI/SA	0.996	1.0E+0	3.039E-2
TH-232	9NS1	0		1/17/2007 10:04:10 PM	**2.044E-02**	3.54E-02	3.544E-02	1.925E-01	PCI/SA	0.996	1.0E+0	3.039E-2
33442	**9JMLA810**			**J7A0902875**	000580	FILTER	1/8/2007 10:00:00		12/5/2006 12:50:00 PM			
TH-228	9NS1	0		1/17/2007 10:04:38 PM	**1.1513E-01**	7.339E-02	7.403E-02	2.472E-01	PCI/SA	0.893	1.0E+0	3.345E-2
TH-230	9NS1	0		1/17/2007 10:04:38 PM	**3.6534E-01**	1.147E-01	1.188E-01	**1.948E-01**	PCI/SA	0.893	1.0E+0	3.345E-2
TH-232	9NS1	0		1/17/2007 10:04:38 PM	**2.757E-02**	3.515E-02	3.523E-02	1.651E-01	PCI/SA	0.893	1.0E+0	3.345E-2
33443	**9JMLT210**			**J7A1001151**	P-0816	FILTER	1/8/2007 10:00:00		12/11/2006 11:40:00 AM			
TH-228	9NS1	0		1/17/2007 10:04:53 PM	**6.9525E-02**	8.978E-02	8.998E-02	3.897E-01	PCI/SA	1.034	1.0E+0	7.981E-2
TH-230	9NS1	0		1/17/2007 10:04:53 PM	**1.7867E-01**	9.209E-02	9.337E-02	2.679E-01	PCI/SA	1.034	1.0E+0	7.981E-2
TH-232	9NS1	0		1/17/2007 10:04:53 PM	**4.4668E-02**	4.994E-02	5.009E-02	2.679E-01	PCI/SA	1.034	1.0E+0	7.981E-2
33443	**9JMLT610**			**J7A1001152**	P-0817	FILTER	1/8/2007 10:00:00		12/11/2006 12:00:00 PM			
TH-228	9NS1	0		1/17/2007 10:05:00 PM	**3.2653E-01**	1.361E-01	1.391E-01	3.264E-01	PCI/SA	0.925	1.0E+0	7.84E-2
TH-230	9NS1	0		1/17/2007 10:05:00 PM	**3.1463E-01**	1.311E-01	1.34E-01	3.145E-01	PCI/SA	0.925	1.0E+0	7.84E-2
TH-232	9NS1	0		1/17/2007 10:05:00 PM	**0.0E+00**	0.0E+00	5.863E-02	3.145E-01	PCI/SA	0.925	1.0E+0	7.84E-2
33443	**9JMLT710**			**J7A1001153**	P-0818	FILTER	1/8/2007 10:00:00		12/11/2006 12:15:00 PM			
TH-228	9NS1	0		1/17/2007 10:06:45 PM	**1.0138E-01**	8.838E-02	8.88E-02	3.408E-01	PCI/SA	1.003	1.0E+0	7.935E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	**1.9537E-02**	4.368E-02	4.372E-02	2.344E-01	PCI/SA	1.003	1.0E+0	7.935E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	**-1.9536E-02**	4.368E-02	4.372E-02	2.344E-01	PCI/SA	1.003	1.0E+0	7.935E-2
33443	**9JMLT810**			**J7A1001154**	P-0819	FILTER	1/8/2007 10:00:00		12/11/2006 11:45:00 AM			
TH-228	9NS1	0		1/17/2007 10:06:45 PM	**5.0395E-02**	7.968E-02	7.98E-02	3.709E-01	PCI/SA	0.746	1.0E+0	3.314E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	**9.7115E-02**	9.084E-02	9.125E-02	3.574E-01	PCI/SA	0.746	1.0E+0	3.314E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	**-2.4278E-02**	5.429E-02	5.433E-02	2.912E-01	PCI/SA	0.746	1.0E+0	3.314E-2
33444	**9JMLV310**			**J7A1001182**	P-0821	FILTER	1/8/2007 10:00:00		12/13/2006 12:43:00 PM			
TH-228	9NS1	0		1/17/2007 10:06:45 PM	**2.1713E-01**	9.95E-02	1.013E-01	2.605E-01	PCI/SA	0.883	1.0E+0	3.297E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	**1.4675E-01**	8.644E-02	8.737E-02	2.515E-01	PCI/SA	0.883	1.0E+0	3.297E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	**1.2578E-01**	7.559E-02	7.637E-02	2.515E-01	PCI/SA	0.883	1.0E+0	3.297E-2
33444	**9JMLV510**			**J7A1001183**	P-0822	FILTER	1/8/2007 10:00:00		12/13/2006 1:15:00 PM			
TH-228	9NS1	0		1/17/2007 10:06:45 PM	**-4.4948E-02**	6.357E-02	6.369E-02	4.174E-01	PCI/SA	0.869	1.0E+0	3.203E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	**3.472E-01**	1.247E-01	1.283E-01	2.603E-01	PCI/SA	0.869	1.0E+0	3.203E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	**0.0E+00**	0.0E+00	4.852E-02	2.603E-01	PCI/SA	0.869	1.0E+0	3.203E-2
33444	**9JMLV810**			**J7A1001184**	P-0824	FILTER	1/8/2007 10:00:00		12/13/2006 1:18:00 PM			
TH-228	9NS1	0		1/17/2007 10:06:45 PM	**0.0E+00**	0.0E+00	8.769E-02	4.705E-01	PCI/SA	0.55	1.0E+0	3.28E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	**1.136E-01**	1.136E-01	1.141E-01	4.542E-01	PCI/SA	0.55	1.0E+0	3.28E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	**1.136E-01**	1.136E-01	1.141E-01	4.542E-01	PCI/SA	0.55	1.0E+0	3.28E-2
33444	**9JMLV910**			**J7A1001185**	P-0582	FILTER	1/8/2007 10:00:00		12/13/2006 1:21:00 PM			
TH-228	9NS1	0		1/17/2007 10:06:45 PM	**8.0735E-02**	6.055E-02	6.094E-02	2.421E-01	PCI/SA	0.905	1.0E+0	3.161E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	**3.5078E-01**	1.185E-01	1.223E-01	2.338E-01	PCI/SA	0.905	1.0E+0	3.161E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	**0.0E+00**	0.0E+00	4.358E-02	2.338E-01	PCI/SA	0.905	1.0E+0	3.161E-2

7011219, **Samples Inserted | Updated | NotUpdated => 16 | 0 | 0,
**Results Inserted | ReTestInserted | Updated | NotInserted => 48 | 0 | 0 | 0.
**Diff RptDb | Qtims => *wo:JMN8F1AA=> , mat:FILTER | Air *wo:JMN8F1AA=> , mat:FILTER | Air *wo:JMN8F1AA=> , mat:FILTER | Air.

SDG or Batch / Isotope	Rpt Db Id / Method	RTst	Qc	LotSample / Analysis Date	Client Id / Result	Matrix / Cnt Uncert	Received Date / Tot Uncert	Mqa	Sample Date / Units	Expected	Yield	Volumes
33443	**9JMLVA10**			**J7A1001155**	000581	FILTER	1/8/2007 10:00:00		12/11/2006 12:20:00 PM			
TH-228	9NS1	0		1/17/2007 10:06:45 PM	**2.3414E-01**	1.352E-01	1.369E-01	4.373E-01	PCI/SA	0.864	1.0E+0	3.202E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	**2.5068E-01**	1.149E-01	1.171E-01	3.007E-01	PCI/SA	0.864	1.0E+0	3.202E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	**1.5041E-01**	9.038E-02	9.143E-02	3.007E-01	PCI/SA	0.864	1.0E+0	3.202E-2
33444	**9JMLVW10**			**J7A1001181**	P-0820	FILTER	1/8/2007 10:00:00		12/13/2006 12:10:00 PM			
TH-228	9NS1	0		1/17/2007 10:06:45 PM	**8.4482E-02**	8.448E-02	8.484E-02	3.378E-01	PCI/SA	0.801	1.0E+0	3.348E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	**2.447E-01**	1.246E-01	1.266E-01	3.262E-01	PCI/SA	0.801	1.0E+0	3.348E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	**5.4377E-02**	6.079E-02	6.1E-02	3.262E-01	PCI/SA	0.801	1.0E+0	3.348E-2
33442	**JMN8F1AB**			**J7A110000219**	INTRA-LAB BLANK	FILTER	1/8/2007 10:00:00		12/5/2006 12:25:00 PM			
TH-228	9NS1	0	B	1/18/2007 9:42:22 AM	**9.8479E-03**	8.584E-03	8.627E-03	3.31E-02	PCI/SA	0.946	1.0E+0	1.0E+0
TH-230	9NS1	0	B	1/18/2007 9:42:22 AM	**7.5416E-03**	5.656E-03	5.695E-03	2.262E-02	PCI/SA	0.946	1.0E+0	1.0E+0
TH-232	9NS1	0	B	1/18/2007 9:42:22 AM	**0.0E+00**	0.0E+00	4.216E-03	2.262E-02	PCI/SA	0.946	1.0E+0	1.0E+0

7011219, **Samples Inserted | Updated | NotUpdated => 16 | 0 | 0,
**Results Inserted | ReTestInserted | Updated | NotInserted => 48 | 0 | 0 | 0.
**Diff RptDb | Qtims => *wo:JMN8F1AA=> , mat:FILTER | Air *wo:JMN8F1AA=> , mat:FILTER | Air *wo:JMN8F1AA=> , mat:FILTER | Air.

Batch Nbr: 7011219

Alpha Spec, ThIso by ALP , Results Summary Report

1/19/2007 5:30:16 AM

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYld
ThIso by ALP			Richland Standard AlpIso Wo Blk Subt.											
Calc	S1	FILTER	JMK811AA	TH-228	3.95E-06	(8.38E-02)	U4	PCI/SA	R	1.59E-01	4.25E-01		95%	
Calc	S1	FILTER	JMK811AA	TH-230	3.03E-01	(1.12E-01)		PCI/SA	R	6.22E-02	2.27E-01		95%	
Calc	S1	FILTER	JMK811AA	TH-232	-3.78E-02	(4.64E-02)	U4	PCI/SA	R	8.80E-02	2.78E-01		95%	
Calc	S1	FILTER	JMLA11AA	TH-228	7.79E-02	(1.83E-01)	U4	PCI/SA	R	3.14E-01	8.39E-01		44%	
Calc	S1	FILTER	JMLA11AA	TH-230	2.24E-01	(1.36E-01)	U4	PCI/SA	R	1.23E-01	4.48E-01		44%	
Calc	S1	FILTER	JMLA11AA	TH-232	0.00E+00	(8.35E-02)	U4	PCI/SA	R	1.23E-01	4.48E-01		44%	
Calc	S1	FILTER	JMLA41AA	TH-228	1.86E-01	(1.28E-01)	U4	PCI/SA	R	1.51E-01	4.46E-01		83%	
Calc	S1	FILTER	JMLA41AA	TH-230	1.27E-01	(9.23E-02)	U4	PCI/SA	R	8.36E-02	3.05E-01		83%	
Calc	S1	FILTER	JMLA41AA	TH-232	-2.54E-02	(5.69E-02)	U4	PCI/SA	R	8.36E-02	3.05E-01		83%	
Calc	S1	FILTER	JMLA71AA	TH-228	1.64E-01	(8.13E-02)		PCI/SA	R	5.23E-02	2.01E-01		100%	
Calc	S1	FILTER	JMLA71AA	TH-230	9.54E-02	(5.99E-02)	U4	PCI/SA	R	3.54E-02	1.63E-01		100%	
Calc	S1	FILTER	JMLA71AA	TH-232	2.04E-02	(3.54E-02)	U4	PCI/SA	R	5.01E-02	1.93E-01		100%	
Calc	S1	FILTER	JMLA81AA	TH-228	1.15E-01	(7.40E-02)	U4	PCI/SA	R	7.49E-02	2.47E-01		89%	
Calc	S1	FILTER	JMLA81AA	TH-230	3.65E-01	(1.19E-01)		PCI/SA	R	5.07E-02	1.95E-01		89%	
Calc	S1	FILTER	JMLA81AA	TH-232	2.76E-02	(3.52E-02)	U4	PCI/SA	R	3.59E-02	1.65E-01		89%	
Calc	S1	FILTER	JMLT21AA	TH-228	6.95E-02	(9.00E-02)	U4	PCI/SA	R	1.32E-01	3.90E-01		103%	
Calc	S1	FILTER	JMLT21AA	TH-230	1.79E-01	(9.34E-02)		PCI/SA	R	7.35E-02	2.68E-01		103%	
Calc	S1	FILTER	JMLT21AA	TH-232	4.47E-02	(5.01E-02)	U4	PCI/SA	R	7.35E-02	2.68E-01		103%	
Calc	S1	FILTER	JMLT61AA	TH-228	3.27E-01	(1.39E-01)		PCI/SA	R	8.95E-02	3.26E-01		93%	
Calc	S1	FILTER	JMLT61AA	TH-230	3.15E-01	(1.34E-01)		PCI/SA	R	8.63E-02	3.15E-01		93%	
Calc	S1	FILTER	JMLT61AA	TH-232	0.00E+00	(5.86E-02)	U4	PCI/SA	R	8.63E-02	3.15E-01		93%	
Calc	S1	FILTER	JMLT71AA	TH-228	1.01E-01	(8.88E-02)	U4	PCI/SA	R	1.16E-01	3.41E-01		100%	
Calc	S1	FILTER	JMLT71AA	TH-230	1.95E-02	(4.37E-02)	U4	PCI/SA	R	6.43E-02	2.34E-01		100%	
Calc	S1	FILTER	JMLT71AA	TH-232	-1.95E-02	(4.37E-02)	U4	PCI/SA	R	6.43E-02	2.34E-01		100%	
Calc	S1	FILTER	JMLT81AA	TH-228	5.04E-02	(7.98E-02)	U4	PCI/SA	R	1.17E-01	3.71E-01		75%	
Calc	S1	FILTER	JMLT81AA	TH-230	9.71E-02	(9.12E-02)	U4	PCI/SA	R	1.13E-01	3.57E-01		75%	
Calc	S1	FILTER	JMLT81AA	TH-232	-2.43E-02	(5.43E-02)	U4	PCI/SA	R	7.99E-02	2.91E-01		75%	
Calc	S1	FILTER	JMLVA1AA	TH-228	2.34E-01	(1.37E-01)		PCI/SA	R	1.48E-01	4.37E-01		86%	
Calc	S1	FILTER	JMLVA1AA	TH-230	2.51E-01	(1.17E-01)		PCI/SA	R	8.25E-02	3.01E-01		86%	
Calc	S1	FILTER	JMLVA1AA	TH-232	1.50E-01	(9.14E-02)		PCI/SA	R	8.25E-02	3.01E-01		86%	
Calc	S1	FILTER	JMLVW1AA	TH-228	8.45E-02	(8.48E-02)	U4	PCI/SA	R	9.26E-02	3.38E-01		80%	
Calc	S1	FILTER	JMLVW1AA	TH-230	2.45E-01	(1.27E-01)		PCI/SA	R	8.94E-02	3.26E-01		80%	
Calc	S1	FILTER	JMLVW1AA	TH-232	5.44E-02	(6.10E-02)	U4	PCI/SA	R	8.94E-02	3.26E-01		80%	
Calc	S1	FILTER	JMLV31AA	TH-228	2.17E-01	(1.01E-01)		PCI/SA	R	7.14E-02	2.60E-01		88%	
Calc	S1	FILTER	JMLV31AA	TH-230	1.47E-01	(8.74E-02)		PCI/SA	R	6.90E-02	2.51E-01		88%	
Calc	S1	FILTER	JMLV31AA	TH-232	1.26E-01	(7.64E-02)		PCI/SA	R	6.90E-02	2.51E-01		88%	
Calc	S1	FILTER	JMLV51AA	TH-228	-4.49E-02	(6.37E-02)	U4	PCI/SA	R	1.48E-01	4.17E-01		87%	

() - (1s Uncertainities)
IDC - Instrument Detection Level in Conc Units
MLcC- Method Decision Level in Conc Units
MDC - Minimum Detectable Concentration
*Std - Lc, MDC using StdDev for Set of Blanks

Q - Qualifier, U is Less Than Lc = 1.645*TPU
All Results Displayed to Three Digits Reguardless of Significants
Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:51
RADCALC v4.8.26
STL Richland

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYld
Calc	S1	FILTER	**JMLV51AA**	TH-230	**3.47E-01**	**(1.28E-01)**		PCI/SA	R	7.14E-02	2.60E-01		87%	
Calc	S1	FILTER	**JMLV51AA**	TH-232	**0.00E+00**	**(4.85E-02)**	**U4**	PCI/SA	R	7.14E-02	2.60E-01		87%	
Calc	S1	FILTER	**JMLV81AA**	TH-228	**0.00E+00**	**(8.77E-02)**	**U4**	PCI/SA	R	1.29E-01	4.70E-01		55%	
Calc	S1	FILTER	**JMLV81AA**	TH-230	**1.14E-01**	**(1.14E-01)**	**U4**	PCI/SA	R	1.25E-01	4.54E-01		55%	
Calc	S1	FILTER	**JMLV81AA**	TH-232	**1.14E-01**	**(1.14E-01)**	**U4**	PCI/SA	R	1.25E-01	4.54E-01		55%	
Calc	S1	FILTER	**JMLV91AA**	TH-228	**8.07E-02**	**(6.09E-02)**	**U4**	PCI/SA	R	6.64E-02	2.42E-01		90%	
Calc	S1	FILTER	**JMLV91AA**	TH-230	**3.51E-01**	**(1.22E-01)**		PCI/SA	R	6.41E-02	2.34E-01		90%	
Calc	S1	FILTER	**JMLV91AA**	TH-232	**0.00E+00**	**(4.36E-02)**	**U4**	PCI/SA	R	6.41E-02	2.34E-01		90%	
Calc	S1	FILTER	**JMN8F1AA**	TH-228	**9.85E-03**	**(8.63E-03)**	**U4**	PCI/SA	R	1.12E-02	3.31E-02	**B**	95%	
Calc	S1	FILTER	**JMN8F1AA**	TH-230	**7.54E-03**	**(5.69E-03)**	**U4**	PCI/SA	R	6.20E-03	2.26E-02	**B**	95%	
Calc	S1	FILTER	**JMN8F1AA**	TH-232	**0.00E+00**	**(4.22E-03)**	**U4**	PCI/SA	R	6.20E-03	2.26E-02	**B**	95%	

No LCS
trainer vial used
P Anderson
1-23-07

() - (1s Uncertainities)
IDC - Instrument Detection Level in Conc Units
MLcC- Method Decision Level in Conc Units
MDC - Minimum Detectable Concentration
*Std - Lc, MDC using StdDev for Set of Blanks

Q - Qualifier, U is Less Than Lc = 1 645*TPU
All Results Displayed to Three Digits Reguardless of Significants
Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:65
RADCALC v4.8.26
STL Richland

1/18/2007 5:15:14 PM

Standard Material Fractions (Vials)

Vial Prep: 1/17/06 to 1/19/07,SMFractionIdentifier Like: THTE0183%, Order by SMIdentifier,ConstituentCode,SMFractionIdentifier

Vial Identifier	Constituent	Prep Activity/Concentration		Std Wt Used		Prep Decayed To Date	Prep by	Std Decayed Activity/Concentration	
	Parent Standard:	TH22906A100	Ref: 10/4/2004			2.1430E+01 ± 7.070E-01	DPM/G		
THTE0183	TH-229	**1.0109E+01**	**± 3.335E-01** DPM	0.4718	g	11/28/2006 11/28/2006	Armstron	2.1426E+01 ± 7.069E-01	DPM/G
		1.0109E+001 ± 1.011E+001 (1)				1.0109E+001 , 1.0109E+001			

STL Richland, SMFractions v4.8.12 Page 1 Record Count: 1

* - Isotope is an Impurity

Batch Nbr: 7011219

Alpha Spec, Thlso by ALP , Calculated Results

Detailed Report

1/19/2007 5:30:17 AM

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
1	Calc	S1	FILTER	*STLE	AlpIsoWoBS	**JMK811AA**	**PCI/SA**		12/05/06 12:25	01/17/07 22:03			1	1.00 Sa	
536403,P-0812					,J7A090287-1 v4.8.26		FILTER					THTF0937 Alq		0.078807 Sa	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/17/07 17:53	TH-228	3	6	ALP113	ED	N	N	3.1726E-01		N	95%	N		1.0000E+00	4.5045E-01	1.0440E+00	
			500.05	1000.1333			Y		(9.518E-03)			6%			(0.000E+00)	12.689255		
1	01/17/07 17:53	TH-229	618	3	ALP113	ED	Y	N	3.1726E-01		N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.05	1000.1333			Y		(9.518E-03)						(0.000E+00)	12.689255		
2	01/17/07 17:53	TH-230	8	0	ALP113	ED	N	N	3.1726E-01		N	95%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.05	1000.1333			Y		(9.518E-03)			6%			(0.000E+00)	12.689255		
3	01/17/07 17:53	TH-232	0	2	ALP113	ED	N	N	3.1726E-01		N	95%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.05	1000.1333			Y		(9.518E-03)			6%			(0.000E+00)	12.689255		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	01/18/07	TH-228	R	**3.9481E-06**	**U4**	1.99953E-07	6.6161E-07	6.6161E-07	1.00 Sa	95%		0.425022		
				(0.083761)		(4.2422E-03)	(0.014037)	(0.014037)	(0.014142)			0.159102		
	01/18/07	TH-229	R	**22.212048**		1.23288E+00	3.886028	3.886028	1.00 Sa	95%				
				(1.606037)		(4.9744E-02)	(0.195386)	(0.195386)	(0.014142)					
	01/18/07	TH-230	R	**0.302577**		1.59984E-02	0.052936	0.052936	1.00 Sa	95%		0.226856		
				(0.111635)		(5.7440E-03)	(0.019336)	(0.019336)	(0.014142)			0.062216		
	01/18/07	TH-232	R	**-0.037821**	**U4**	-1.99973E-03	-0.006617	-0.006617	1.00 Sa	95%		0.278367		
				(0.046433)		(2.4492E-03)	(0.008116)	(0.008116)	(0.014142)			0.087987		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
2	Calc	S1	FILTER	*STLE	AlpIsoWoBS	**JMLA11AA**	**PCI/SA**		12/05/06 12:10	01/17/07 22:04			1	1.00 Sa	
536403,P-0813					,J7A090287-2 v4.8.26		FILTER					THTF0938 Alq		0.082984 Sa	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/17/07 17:54	TH-228	4	6	ALP114	ED	N	N	3.3167E-01		N	44%	N		1.0000E+00	4.5045E-01	1.0440E+00	
			500.15	1000.0666			Y		(9.950E-03)			3%			(0.000E+00)	12.050587		
1	01/17/07 17:54	TH-229	295	1	ALP114	ED	Y	N	3.3167E-01		N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.15	1000.0666			Y		(9.950E-03)						(0.000E+00)	12.050587		
2	01/17/07 17:54	TH-230	3	0	ALP114	ED	N	N	3.3167E-01		N	44%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.15	1000.0666			Y		(9.950E-03)			3%			(0.000E+00)	12.050587		
3	01/17/07 17:54	TH-232	0	0	ALP114	ED	N	N	3.3167E-01		N	44%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.15	1000.0666			Y		(9.950E-03)			3%			(0.000E+00)	12.050587		

() - (1s Uncertainities), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU

RecCnt:2

RADCALC v4.8.26

IDC - Instrument Detection Level in Conc Units, MLcC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration

Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significants, Date/Time - mm/dd/yy hh:mm, 24hr Time

STL Richland

Batch Nbr: 7011219 — Alpha Spec, ThIso by ALP , Calculated Results — 1/19/2007 5:30:17 AM

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	01/18/07	TH-228	R	**0.077868**	U4	1.99800E-03	0.01374	0.01374	1.00 Sa	44%		0.838831		
				(0.182905)		(4.6893E-03)	(0.032267)	(0.032267)	(0.014142)			0.314017		
	01/18/07	TH-229	R	**9.636669**		5.88823E-01	1.775302	1.775302	1.00 Sa	44%				
				(0.806506)		(3.4355E-02)	(0.116472)	(0.116472)	(0.014142)					
	01/18/07	TH-230	R	**0.223914**	U4	5.99820E-03	0.04125	0.04125	1.00 Sa	44%		0.447711		
				(0.136223)		(3.6045E-03)	(0.025004)	(0.025004)	(0.014142)			0.122794		
	01/18/07	TH-232	R	**0.00E00**	U4	0.00000E+00	0.00E00	0.00E00	1.00 Sa	44%		0.447711		
				(0.083452)		(2.2355E-03)	(0.015374)	(0.015374)	(0.014142)			0.122794		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
3	Calc	S1	FILTER	*STLE	AlpIsoWoBS	**JMLA41AA**	**PCI/SA**		12/05/06 12:45	01/17/07 22:04			1	1.00 Sa	
536403,P-0814					,J7A090287-3 v4.8.26		FILTER					THTF0939 Alq		0.081149 Sa	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/17/07 17:54	TH-228	5	3	ALP116	ED	N	N	2.6199E-01		N	83%	N		1.0000E+00	4.5045E-01	1.0440E+00	
			500.0833333	1000.05			Y		(7.860E-03)			5%			(0.000E+00)	12.323053		
1	01/17/07 17:54	TH-229	445	2	ALP116	ED	Y	N	2.6199E-01		N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.0833333	1000.05			Y		(7.860E-03)						(0.000E+00)	12.323053		
2	01/17/07 17:54	TH-230	3	1	ALP116	ED	N	N	2.6199E-01		N	83%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.0833333	1000.05			Y		(7.860E-03)			5%			(0.000E+00)	12.323053		
3	01/17/07 17:54	TH-232	0	1	ALP116	ED	N	N	2.6199E-01		N	83%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.0833333	1000.05			Y		(7.860E-03)			5%			(0.000E+00)	12.323053		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	01/18/07	TH-228	R	**0.185756**	U4	6.99848E-03	0.032054	0.032054	1.00 Sa	83%		0.446124		
				(0.128333)		(4.7951E-03)	(0.022083)	(0.022083)	(0.014142)			0.151234		
	01/18/07	TH-229	R	**18.811679**		8.87852E-01	3.38893	3.38893	1.00 Sa	83%				
				(1.440029)		(4.2207E-02)	(0.190501)	(0.190501)	(0.014142)					
	01/18/07	TH-230	R	**0.127097**	U4	4.99905E-03	0.022897	0.022897	1.00 Sa	83%		0.304951		
				(0.092343)		(3.6050E-03)	(0.016593)	(0.016593)	(0.014142)			0.083637		
	01/18/07	TH-232	R	**-0.025423**	U4	-9.99950E-04	-0.00458	-0.00458	1.00 Sa	83%		0.304951		
				(0.056887)		(2.2357E-03)	(0.010245)	(0.010245)	(0.014142)			0.083637		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
4	Calc	S1	FILTER	*STLE	AlpIsoWoBS	**JMLA71AA**	**PCI/SA**		12/05/06 12:30	01/17/07 22:04			1	1.00 Sa	
536403,P-0815					,J7A090287-4 v4.8.26		FILTER					THTF0940 Alq		0.080394 Sa	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/17/07 17:54	TH-228	5	2	ALP117	ED	N	N	3.3025E-01		N	100%	N		1.0000E+00	4.5045E-01	1.0440E+00	
			500	2500.05			Y		(9.908E-03)			6%			(0.000E+00)	12.438814		

() - (1s Uncertainities), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU

RecCnt.4 RADCALC v4.8.26

IDC - Instrument Detection Level in Conc Units, MLcC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration

Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significants. Date/Time - mm/dd/yy hh:mm, 24hr Time

STL Richland

Batch Nbr: 7011219 — Alpha Spec, ThIso by ALP , Calculated Results — 1/19/2007 5:30:17 AM

1	01/17/07 17:54	TH-229	671	2	ALP117	ED	Y	N	3.3025E-01		N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00
			500	2500.05			Y		(9.908E-03)					(0.000E+00)	12.438814	
2	01/17/07 17:54	TH-230	3	1	ALP117	ED	N	N	3.3025E-01		N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00
			500	2500.05			Y		(9.908E-03)			6%		(0.000E+00)	12.438814	
3	01/17/07 17:54	TH-232	1	2	ALP117	ED	N	N	3.3025E-01		N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00
			500	2500.05			Y		(9.908E-03)			6%		(0.000E+00)	12.438814	

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/18/07	TH-228	R	**0.1636**		9.20002E-03	0.027968	0.027968	1.00 Sa	100%		0.200975		
				(0.081333)		(4.5078E-03)	(0.013828)	(0.013828)	(0.014142)			0.052328		
	01/18/07	TH-229	R	**22.754903**		1.34120E+00	4.061154	4.061154	1.00 Sa	100%				
				(1.623793)		(5.1810E-02)	(0.198634)	(0.198634)	(0.014142)					
	01/18/07	TH-230	R	**0.095387**	U4	5.60001E-03	0.017024	0.017024	1.00 Sa	100%		0.163163		
				(0.059937)		(3.4871E-03)	(0.010661)	(0.010661)	(0.014142)			0.035442		
	01/18/07	TH-232	R	**0.02044**	U4	1.20002E-03	0.003648	0.003648	1.00 Sa	100%		0.192507		
				(0.035445)		(2.0785E-03)	(0.006323)	(0.006323)	(0.014142)			0.050123		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
5	Calc	S1	FILTER	*STLE	AlpIsoWoBS	**JMLA81AA**	**PCI/SA**		12/05/06 12:50	01/17/07 22:04			1	1.00 Sa	
536403,000580					,J7A090287-5 v4.8.26		FILTER					THTF0941 Alq		0.083453 Sa	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/17/07 17:54	TH-228	4	4	ALP118	ED	N	N	3.5075E-01		N	89%	N		1.0000E+00	4.5045E-01	1.0440E+00	
			500.1833333	2500.0166			Y		(1.052E-02)			5%			(0.000E+00)	11.982788		
1	01/17/07 17:54	TH-229	641	9	ALP118	ED	Y	N	3.5075E-01		N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.1833333	2500.0166			Y		(1.052E-02)						(0.000E+00)	11.982788		
2	01/17/07 17:54	TH-230	11	2	ALP118	ED	N	N	3.5075E-01		N	89%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.1833333	2500.0166			Y		(1.052E-02)			5%			(0.000E+00)	11.982788		
3	01/17/07 17:54	TH-232	1	1	ALP118	ED	N	N	3.5075E-01		N	89%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.1833333	2500.0166			Y		(1.052E-02)			5%			(0.000E+00)	11.982788		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/18/07	TH-228	R	**0.115131**	U4	6.39708E-03	0.020431	0.020431	1.00 Sa	89%		0.247188		
				(0.074033)		(4.0778E-03)	(0.013095)	(0.013095)	(0.014142)			0.074883		
	01/18/07	TH-229	R	**19.665672**		1.27793E+00	3.643379	3.643379	1.00 Sa	89%				
				(1.41398)		(5.0632E-02)	(0.181063)	(0.181063)	(0.014142)					
	01/18/07	TH-230	R	**0.365335**		2.11919E-02	0.067684	0.067684	1.00 Sa	89%		0.194783		
				(0.118817)		(6.6549E-03)	(0.02173)	(0.02173)	(0.014142)			0.05072		
	01/18/07	TH-232	R	**0.02757**	U4	1.59927E-03	0.005108	0.005108	1.00 Sa	89%		0.16509		
				(0.035226)		(2.0389E-03)	(0.006521)	(0.006521)	(0.014142)			0.035865		

Batch Nbr: 7011219 — Alpha Spec, Thlso by ALP , Calculated Results — 1/19/2007 5:30:19 AM

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
16	Calc	S1	FILTER	*STLE	AlpIsoWoBS	JMN8F1AA	PCI/SA	B	12/05/06 12:25	01/18/07 09:42			1	1.00 Sa	
0,INTRA-LAB BLANK					,J7A110000-219		FILTER					THTF0952 Alq		1.00 Sa	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/18/07 05:32	TH-228	4	3	ALP119	ED	N	N	2.5259E-01		N	95%	N		1.0000E+00	4.5045E-01	1.0445E+00	
			500.0333333	1000.3166			Y		(7.578E-03)			6%			(0.000E+00)	1.00		
1	01/18/07 05:32	TH-229	485	1	ALP119	ED	Y	N	2.5259E-01		N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.0333333	1000.3166			Y		(7.578E-03)						(0.000E+00)	1.00		
2	01/18/07 05:32	TH-230	2	0	ALP119	ED	N	N	2.5259E-01		N	95%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.0333333	1000.3166			Y		(7.578E-03)			6%			(0.000E+00)	1.00		
3	01/18/07 05:32	TH-232	0	0	ALP119	ED	N	N	2.5259E-01		N	95%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.0333333	1000.3166			Y		(7.578E-03)			6%			(0.000E+00)	1.00		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/19/07	TH-228	R	**0.009848**	U4	5.00042E-03	0.020931	0.020931	1.00 Sa	95%		0.033101		
				(0.008627)		(4.3584E-03)	(0.018303)	(0.018303)	(0.017321)			0.01122		
	01/19/07	TH-229	R	**1.727934**		9.68936E-01	3.836016	3.836016	1.00 Sa	95%				
				(0.131223)		(4.4054E-02)	(0.208955)	(0.208955)	(0.017321)					
	01/19/07	TH-230	R	**0.007542**	U4	3.99973E-03	0.016742	0.016742	1.00 Sa	95%		0.022616		
				(0.005695)		(2.9997E-03)	(0.012612)	(0.012612)	(0.017321)			0.006202		
	01/19/07	TH-232	R	**0.00E00**	U4	0.00000E+00	0.00E00	0.00E00	1.00 Sa	95%		0.022616		
				(0.004216)		(2.2358E-03)	(0.009359)	(0.009359)	(0.017321)			0.006202		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
17	Err	S1	FILTER	*STLE	AlpIsoWoBS	JMN8F1AC	PCI/SA	S	12/05/06 12:25	01/18/07 09:42		THTE0183	1	1.00 Sa	
0,INTRA-LAB CHECK					,J7A110000-219		FILTER					THTE0183 Alq		1.00 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
1	01/18/07 05:32	TH-229	1045	6	ALP120	ED	Y	N	2.3685E-01		N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.2	1000.2666			Y		(7.106E-03)						(0.000E+00)	1.00		
2	01/18/07 05:32	TH-230	5	0	ALP120	ED	N	N			N		N					
			500.2	1000.2666			Y									1.00		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/19/07	TH-229	R	**3.961765**		2.08317E+00	8.795127	8.795127	1.00 SA	87%				
				(0.270558)		(6.4673E-02)	(0.379705)	(0.379705)	(0.017321)					

() - (1s Uncertainities), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU

RecCnt.17

RADCALC v4.8.26

IDC - Instrument Detection Level in Conc Units, MLcC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration

STL Richland

Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significants, Date/Time - mm/dd/yy hh:mm, 24hr Time

SEVERN TRENT STL

THORIUM ISOTOPIC COUNTING REQUEST

1/18 0217

STL RICHLAND

C.R. Technician OK
Date Counted 1/17/07

C.R. Analyst CO
Date Analyzed 1/18/07

Counting Time
Sample 500 Minutes

Background See Alpha Analysis Report
BRC 12/5/06

SOP's
Operating: RICHRD008
Review: RICHRD0016
7011219

WorkOrder #	Th-229 (4845 KeV) Tracer from Th-234 Beta Count (7) ID	Activity	ROI Cts	BKG	TOTAL COUNTS Th-228 (5423 KeV) (6)	Th-230 (4688 KeV) (8)	Th-232 (4010 KeV) (9)	Det #	Comment
JMK811AA ✓		10		0	See Alpha Analysis Report for ROI Information			113	
JMLA11AA ✓		10		0	See Alpha Analysis Report for ROI Information			114	
JMLA41AA ✓		10		0	See Alpha Analysis Report for ROI Information			116	
JMLA71AA ✓		10		0	See Alpha Analysis Report for ROI Information			117	
JMLA81AA ✓		10		0	See Alpha Analysis Report for ROI Information			118	
JMLT21AA		10		0	See Alpha Analysis Report for ROI Information			119	
JMLT61AA		10		0	See Alpha Analysis Report for ROI Information			120	
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				

Comments:

Form No: RC-012, 10/02, Rev 9

Approved by: S

Date: 1/18/07

STL RICHLAND

SEVERN TRENT **STL**

THORIUM ISOTOPIC COUNTING REQUEST

1352

C.R. Technician CB
Date Counted 1/18/07

C.R. Analyst _____
Date Analyzed _____

Counting Time
Sample 500 Minutes

Background See Alpha Analysis Report
BRC 12/5/06

SOP's
Operating: RICHRD008
Review: RICHRD0016
7011219

WorkOrder #	Th-229 (4845 KeV) Tracer from Th-234 Beta Count (7)				TOTAL COUNTS				
					Th-228 (5423 KeV)	Th-230 (4688 KeV)	Th-232 (4010 KeV)		
	ID	Activity	ROI Cts	BKG	(6)	(8)	(9)	Det #	Comment
JMN8F1AA		10		0	See Alpha Analysis Report for ROI Information			119	
JMN8F1AC		10		0	See Alpha Analysis Report for ROI Information			120	
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				

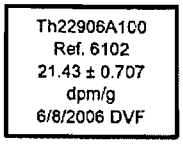
Comments:

Form No: RC-012, 10/02, Rev 9

Approved by: _____ Date: _____

THORIUM

STANDARDS AND TRACEABILITY


Th22906A100
Ref. 6102
21.43 ± 0.707
dpm/g
6/8/2006 DVF

Th-229 Verification Check

6/8/2006
tda

Source
Th22906A100 #6102

Source
Th23006A100 #6096

Calculation for Th229 Radiochemical Yield
*(Th229 cpm * d/c) / (Th229 dpm expected * Tracer Yield) =*

	Th229 cpm	d/c	Th229 dpm expected	Tracer Yield	RCHEM Yield
DVF2638	6.72	3.438	21.769	1.053	1.00766
DVF2639	6.744	3.339	21.73	1.036	0.999814
DVF2640	5.597	3.941	21.739	1.062	0.955033
DVF2641	5.839	4.03	21.779	1.088	0.993415
				Avg.	0.989
				Std. Dev.	0.02

Calculation for Th230Tracer Yield
(Th230 cpm) (d/c) / Th230 dpm expected) =

	Th230 cpm	d/c	Th230 dpm exp.	Tracer Yield
DVF2638	6.755	3.438	22.05	1.053
DVF2639	6.839	3.339	22.032	1.036
DVF2640	5.953	3.941	22.082	1.062
DVF2641	5.936	4.03	21.995	1.088
			Avg.	1.060
			Std. Dev.	0.02

The original NIST Cerificate is located in Document Control Dept.

SEVERN TRENT STL

COUNTING REQUEST

Type of count:	Alpha:		count time:			units:	
	Beta:		count time:			units:	
	Gamma:		count time:		Geom.:	units:	
	Alpha Spec:	✓	count time:	1000		units:	dpm/Sa

Requested by: TDA Date submitted: 6/6/16

	Sample ID	Isotopes of interest	Sample Date
171	DVF2638	Th22906A100	
172	2639		
173	2640		
174	↓ 2641		
175	2642	Th22902A120	
176	2643		
177	2644		
178	2645		

ADDITIONAL INSTRUCTIONS:

T060094 ED * Th22906A100 # 6102

Th23006A100 # 6096

* Th22902A120 #5518

STL RICHLAND

SEVERN TRENT **STL**

THORIUM ISOTOPIC COUNTING REQUEST

6/8

0822

C.R. Technician DP
Date Counted 6/7/06

C.R. Analyst DP
Date Analyzed 6/8/06

Counting Time
Sample 1000 Minutes

Background See Alpha Analysis Report STLR 6/6/2006

SOP's
Operating: RICHRD008
Review: RICHRD0016 TO60094

WorkOrder #	Th-229 (4845 KeV) Tracer from Th-234 Beta Count (7)				TOTAL COUNTS			Det #	Comment
					Th-228 (5423 KeV)	Th-230 (4688 KeV)	Th-232 (4010 KeV)		
	ID	Activity	ROI Cts	BKG	(6)	(8)	(9)		
DVF 2638		10		0	See Alpha Analysis Report for ROI Information			171	3.438
DVF 2639		10		0	See Alpha Analysis Report for ROI Information			172	3.339
DVF 2640		10		0	See Alpha Analysis Report for ROI Information			173	3.941
DVF 2641		10		0	See Alpha Analysis Report for ROI Information			174	4.03
DVF 2642		10		0	See Alpha Analysis Report for ROI Information			175	3.405
DVF 2643		10		0	See Alpha Analysis Report for ROI Information			176	3.431
DVF 2644		10		0	See Alpha Analysis Report for ROI Information			177	3.077
DVF 2645		10		0	See Alpha Analysis Report for ROI Information			178	3.191
		10		0	See Alpha Analysis Report for ROI Information				

Comments:

Form No: RC-012, 10/02, Rev 9

Approved by: S

Date: 6/8/06

Vial Identifier	Constituent	Prep Activity/Concentration			Std Wt Used		Prep,Decayed To Date		Prep by	Std Decayed Activity/Concentration		
Parent Standard: TH22906A100				Ref: 10/4/2004			2.1430E+01	± 7.070E-01	DPM/G			
DVF2638	TH-229	**2.1769E+01**	± **7.182E-01**	DPM	1.0158	g	6/6/2006	6/6/2006	Armstron	2.1430E+01	± 7.070E-01	DPM/G
DVF2639	TH-229	**2.1730E+01**	± **7.169E-01**	DPM	1.014	g	6/6/2006	6/6/2006	Armstron	2.1430E+01	± 7.070E-01	DPM/G
DVF2640	TH-229	**2.1739E+01**	± **7.172E-01**	DPM	1.0144	g	6/6/2006	6/6/2006	Armstron	2.1430E+01	± 7.070E-01	DPM/G
DVF2641	TH-229	**2.1779E+01**	± **7.185E-01**	DPM	1.0163	g	6/6/2006	6/6/2006	Armstron	2.1430E+01	± 7.070E-01	DPM/G
		2.1754E+001 ± 2.356E-002 (4)			0.108%		2.1730E+001 , 2.1779E+001					

ISOTOPE DILUTION RECORD

1) Prepared by	tda	2) Date Prepared	10/8/2004
3) Source Identification Number / Ref. Number	***TH22906A100***		***6102***
4) Source Activity (dpm ± dpm/g)	2.1430E+03	±	7.070E-01
5) Percent error of Source Activity	3.3 %		
6) Weight of Source Material used (g)	1		
7) (% Error) of Weight of Source Material used	0.4800 %		
8) Diluent	0.5 M HNO3		
9) Total Weight of the Dilution (g)	100		
10) (% Error) of Total Weight of the Dilution	0.3000 %		
11) Specific Activity of Diluted Solution dpm/g	***2.1430E+01***	***±***	***7.175E-01***
12) Total Uncertainty	3.348 %		
13) Dilution Identification Number / Ref. Number	***TH22906A100***		***6102***
14) Calibration Reference Date	11/12/2003		
15) Isotope Inventory File update by/date	tda		
16) Reviewed by/date			
17) Location QCLAB	18) Exhausted		

****

CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = (% error of Source Activity ^2 + % error of Wt Used^2 + % error of Dilution Wt.^2)

Form CC-006, 7/15/99, Rev 3

THORIUM

CONTINUING CALIBRATION

Quality Assurance Report Generated 7-FEB-2007 08:46:35.28

QA Filename RDND06::RDND06$DKA100:[ALP113.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

Description : Efficiency, Pu-239
Parameter Units : % Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		0.3299	| | |

-- Multi-Test Full Report --

Description : Constant FWHM
Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		5.8333	| | |

-- Multi-Test Full Report --

Description : Centroid, Pu-239
Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		312.5523	| | |

-- Multi-Test Full Report --

Description : Average Efficiency
Parameter Units : % Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		0.3441	| | |

-- Multi-Test Full Report --

Description : Energy Calibration Slope
Parameter Units : keV/chan Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		2.9819	| |

-- Multi-Test Full Report --

Description : Efficiency, Am-241
Parameter Units : % Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		0.3299	| | |

-- Multi-Test Full Report --

Description : Centroid, Am-241
Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		356.5967	| | |

Quality Assurance Report. Generated 7-FEB-2007 08:46:36.40

QA Filename : RDND06:[RDND06$DKA100:[ALP113.QA]GROUP_1_BKG.QAF;1

-- Multi-Test Full Report --

Description : 4010, Th-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| |

-- Multi-Test Full Report --

Description : 4196, U-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| |

-- Multi-Test Full Report --

Description : 4396, U-235 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| |

-- Multi-Test Full Report --

Description : 4688, Th-230 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| |

-- Multi-Test Full Report --

Description : 4776, U-234 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| |

-- Multi-Test Full Report --

Description : 4788, Np-237 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

22-JAN-2007 06:25 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 4845, Th-229 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4882, Po-209 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4901, Pu-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5155, Pu-239 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5275, Am-243 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5305, Po-210 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5320, U-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5423, Th-228 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 3

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5486, Am-241 bkg (cnts/min)

Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5499, Pu-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5770, Pu-236 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0050	| | |

-- Multi-Test Full Report --

Description : 5805, Cm-244 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0060	| | |

-- Multi-Test Full Report --

Description : 6113, Cm-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

Quality Assurance Report. Generated 7-FEB-2007 08:54:13.35

QA Filename RDND06::RDND06$DKA100:[ALP114.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

Description : Efficiency, Pu-239
Parameter Units : Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		0.4256	| | |

-- Multi-Test Full Report --

Description : Constant FWHM
Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		6.8333	| | |

-- Multi-Test Full Report --

Description : Centroid, Pu-239
Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		303 2285	| | |

-- Multi-Test Full Report --

Description : Average Efficiency
Parameter Units : Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		0.3379	| | |

-- Multi-Test Full Report --

Description : Efficiency, Am-241
Parameter Units : % Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		0.4256	| | |

-- Multi-Test Full Report --

Description : Centroid, Am-241
Parameter Units : channels Parameter Type

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		348.9291	| | |

Quality Assurance Report. Generated 7-FEB-2007 08:54.14.38

QA Filename : RDND06::RDND06$DKA100:[ALP114.QA]GROUP_1_BKG.QAF;1

-- Multi-Test Full Report --

Description : 4010, Th-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4196, U-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description 4396, U-235 bkg (cnts/min)

Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4688, Th-230 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4776, U-234 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4788, Np-237 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4845, Th-229 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

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22-JAN-2007 06:25 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 4882, Po-209 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4901, Pu-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5155, Pu-239 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0020	| | |

-- Multi-Test Full Report --

Description : 5275, Am-243 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0010	| | |

-- Multi-Test Full Report --

Description : 5305, Po-210 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0020	| | |

-- Multi-Test Full Report --

Description : 5320, U-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0020	| | |

-- Multi-Test Full Report --

Description : 5423, Th-228 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 3

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0030	| | |

-- Multi-Test Full Report --

Description : 5486, Am-241 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0040	| | |

-- Multi-Test Full Report --

Description : 5499, Pu-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

22-JAN-2007 06:25 bkg 0.0040 | | |

-- Multi-Test Full Report --

Description : 5770, Pu-236 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5805, Cm-244 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0040	| | |

-- Multi-Test Full Report --

Description : 6113, Cm-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0010	| | |

Quality Assurance Report. Generated 7-FEB-2007 08:54:37.49

QA Filename : RDND06::RDND06$DKA100:[ALP116.QA]GROUP_1_CHK QAF;2

-- Multi-Test Full Report --

Description : U-238 Centroid
Parameter Units : channel Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		179.7862	| | |

-- Multi-Test Full Report --

Description : Constant FWHM
Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		8.6667	| | |

-- Multi-Test Full Report --

Description : Cf-252 Centroid
Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		435.9836	| | |

-- Multi-Test Full Report --

Description : Average Efficiency
Parameter Units : counts/decay Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		0.1720	| | |

-- Multi-Test Full Report --

Description Am-241 Efficiency
Parameter Units : counts/decay Parameter Type

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		0.1679	| | |

Quality Assurance Report. Generated 7-FEB-2007 08:54:38.45

QA Filename : RDND06::RDND06$DKA100:[ALP116.QA]GROUP_1_BKG.QAF;1

Multi-Test Full Report --

Description : 4010, Th-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4196, U-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0010	| | |

-- Multi-Test Full Report --

Description : 4396, U-235 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4688, Th-230 bkg (cnts/min)

Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4776, U-234 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4788, Np-237 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4845, Th-229 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4882, Po-209 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4901, Pu-242 bkg (cnts/min)
Parameter Units . cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0010	| | |

-- Multi-Test Full Report --

Description : 5155, Pu-239 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0030	| | |

-- Multi-Test Full Report --

Description : 5275, Am-243 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0010	| | |

-- Multi-Test Full Report --

Description : 5305, Po-210 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5320, U-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5423, Th-228 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 3

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0020	| | |

-- Multi-Test Full Report --

Description : 5486, Am-241 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0050	| | |

-- Multi-Test Full Report --

Description : 5499, Pu-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0050	| | |

-- Multi-Test Full Report --

Description : 5770, Pu-236 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

22-JAN-2007 06:25 bkg 0.0090 | | |

-- Multi-Test Full Report --

Description : 5805, Cm-244 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0080	| | |

-- Multi-Test Full Report --

Description : 6113, Cm-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

Quality Assurance Report.   Generated 7-FEB-2007 08:54:56.08

QA Filename   RDND06 RDND06$DKA?00:[ALPHA17.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

Description   : Efficiency, Am-241
Parameter Units : %   Parameter Type

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		0.3491	| | |

-- Multi-Test Full Report --

Description   : Constant FWHM
Parameter Units : channels   Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		7.1667	| | |

-- Multi-Test Full Report --

Description   : Centroid, Am-241
Parameter Units : channels   Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		361.0898	| | |

-- Multi-Test Full Report --

Description   : Average Efficiency
Parameter Units : %   Parameter Type .

Investigate Level 2.000000   Action Level 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date   28-SEP-2005 00:00 End Date   30-MAY-2010 00:00
Mean   0.341377   Std Deviation 0.002301

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		0.3450	| | |

-- Multi-Test Full Report --

Description : Energy Calibration Slope
Parameter Units : keV/chan Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		7.5703	| | |

Quality Assurance Report. Generated 7-FEB-2007 08:54:57.06

QA Filename : RDND06::RDND06$DKA100:[ALP117.QA]GROUP_1_BKG.QAF;1

-- Multi-Test Full Report --

Description : 4901, Pu-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0008	| | |

-- Multi-Test Full Report --

Description : 5155, Pu-239 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5275, Am-243 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

22-JAN-2007 06:25	bkg		0.0004	| | |

-- Multi-Test Full Report --

Description : 5486, Am-241 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5499, Pu-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5805, Cm-244 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0136	| | |

-- Multi-Test Full Report --

Description : 6113, Cm-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0028	| | |

-- Multi-Test Full Report --

Description : 4010, Th-232 bkg (cnts/min)
Parameter Units : cpm Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0004	| | |

-- Multi-Test Full Report --

Description : 4688, Th-230 bkg (cnts/min)
Parameter Units : cpm Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0004	| | |

-- Multi-Test Full Report --

Description : 4845, Th-229 bkg (cnts/min)
Parameter Units : cpm Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0004	| | |

-- Multi-Test Full Report --

Description : 5423, Th-228 bkg (cnts/min)
Parameter Units : cpm Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

Quality Assurance Report. Generated: 7-FEB-2007 08:55:04.24

QA Filename : RDND06::RDND06$DKA130:[ALPH18.QA]GROUP_1_CHK.QAP;1

-- Multi-Test Full Report --

Description : Efficiency, Am-241
Parameter Units : % Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		0.3492	| | |

-- Multi-Test Full Report --

Description : Constant FWHM
Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		7.3333	| | |

-- Multi-Test Full Report --

Description : Centroid, Am-241
Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		344.7234	| | |

-- Multi-Test Full Report --

Description : Average Efficiency
Parameter Units : % Parameter Type :

Investigate Level : 2.000000 Action Level : 3.000000

--- Sample Driven N-Sigma Test Parameters ---
Start Date : 1-DEC-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.326330 Std Deviation : 0.000064

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		0.3592	| | |

-- Multi-Test Full Report --

Description : Energy Calibration Slope
Parameter Units : keV/chan Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		7.6321	| | |

Quality Assurance Report. Generated 7-FEB-2007 08:55:05.47

QA Filename : RDND06::RDND06$DKA100:[ALP118.QA]GROUP_1_BKG.QAF;1

-- Multi-Test Full Report --

Description : 4010, Th-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0008	| | |

-- Multi-Test Full Report --

Description : 4196, U-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4396, U-235 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

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22-JAN-2007 06:25 bkg 0.0004 | | |

-- Multi-Test Full Report --

Description : 4688, Th-230 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0008	| | |

-- Multi-Test Full Report --

Description : 4776, U-234 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0012	| | |

-- Multi-Test Full Report --

Description : 4788, Np-237 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0016	| | |

-- Multi-Test Full Report --

Description : 4845, Th-229 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0020	| | |

-- Multi-Test Full Report --

Description : 4882, Po-209 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0020	| | |

-- Multi-Test Full Report --

Description : 4901, Pu-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0016	| | |

-- Multi-Test Full Report --

Description : 5155, Pu-239 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0036	| | |

-- Multi-Test Full Report --

Description : 5275, Am-243 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0040	| | |

-- Multi-Test Full Report --

Description : 5305, Po-210 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

22-JAN-2007 06:25 bkg 0.0028 | | |

-- Multi-Test Full Report --

Description : 5320, U-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0028	| | |

-- Multi-Test Full Report --

Description : 5423, Th-228 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0004	| | |

-- Multi-Test Full Report --

Description : 5486, Am-241 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0012	| | |

-- Multi-Test Full Report --

Description : 5499, Pu-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0012	| | |

-- Multi-Test Full Report --

Description : 5770, Pu-236 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0060	| | |

-- Multi-Test Full Report --

Description : 5805, Cm-244 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0104	| | |

-- Multi-Test Full Report --

Description : 6113, Cm-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0040	| | |

Quality Assurance Report. Generated 7-FEB-2007 08:55:26.41

QA Filename : RDND06::RDND06$DKA100:[ALP119.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

Description : Efficiency, Am-241
Parameter Units : % Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		0.2487	| | |

-- Multi-Test Full Report --

Description : Constant FWHM
Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		9.1667	| | |

-- Multi-Test Full Report --

Description : Centroid, Am-241
Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		355.1082	| | |

-- Multi-Test Full Report --

Description : Average Efficiency
Parameter Units : % Parameter Type :

Investigate Level 2.000000 Action Level 3.000000

--- Sample Driven N-Sigma Test Parameters ----
Start Date 10-DEC-2000 00:00 End Date 30-MAY-2030 00:00
Mean 0.260374 Std Deviation : 0.004557

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		0.2581	| | |

-- Multi-Test Full Report --

Description : Energy Calibration Slope
Parameter Units : keV/chan Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		7.4547	| | |

Quality Assurance Report. Generated 7-FEB-2007 08:55:27.69

QA Filename : RDND06:[RDND06$DKA100.][ALP119.QA]GROUP_1_BKG.QAF;1

-- Multi-Test Full Report --

Description : 4010, Th-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0010	| | |

-- Multi-Test Full Report --

Description : 4196, U-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4396, U-235 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

22-JAN-2007 06:25 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 4688, Th-230 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4776, U-234 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4788, Np-237 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4845, Th-229 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4882, Po-209 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4901, Pu-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5155, Pu-239 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0020	| | |

-- Multi-Test Full Report --

Description : 5275, Am-243 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0020	| | |

-- Multi-Test Full Report --

Description : 5305, Po-210 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

22-JAN-2007 06:25 bkg 0.0010 | | |

-- Multi-Test Full Report --

Description : 5320, U-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0030	| | |

-- Multi-Test Full Report --

Description : 5423, Th-228 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 3

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0040	| | |

-- Multi-Test Full Report --

Description : 5486, Am-241 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0020	| | |

-- Multi-Test Full Report --

Description : 5499, Pu-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0020	| | |

-- Multi-Test Full Report --

Description : 5770, Pu-236 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0070	| | |

- Multi-Test Full Report --

Description : 5805, Cm-244 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0100	| | |

-- Multi-Test Full Report --

Description : 6113, Cm-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0040	| | |

Quality Assurance Report. Generated 5-MAR-2007 16:16:54.28

QA Filename : RDND06::RDND06$DKA100:[ALP120.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

Description : Efficiency, Am-241
Parameter Units : % Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		0.2457	| | |

-- Multi-Test Full Report --

Description : Constant FWHM
Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		10.0000	| | |

-- Multi-Test Full Report --

Description : Centroid, Am-241
Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		357.0564	| | |

-- Multi-Test Full Report --

Description : Average Efficiency
Parameter Units : % Parameter Type :

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 10-DEC-2000 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.244296 Std Deviation : 0.003785

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		0.2422	| | |

-- Multi-Test Full Report --

Description : Energy Calibration Slope
Parameter Units : keV/chan Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
21-JAN-2007 09:01	chk		7.2279	| | |

Quality Assurance Report. Generated 5-MAR-2007 16:16:55.68

QA Filename : RDND06::RDND06$DKA100:[ALP120.QA]GROUP_1_BKG.QAF;1

-- Multi-Test Full Report --

Description : 4010, Th-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0010	| | |

-- Multi-Test Full Report --

Description : 4196, U-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4396, U-235 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

---

22-JAN-2007 06:25 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 4688, Th-230 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4776, U-234 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4788, Np-237 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4845, Th-229 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4882, Po-209 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4901, Pu-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5155, Pu-239 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0020	| | |

-- Multi-Test Full Report --

Description : 5275, Am-243 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0040	| | |

-- Multi-Test Full Report --

Description : 5305, Po-210 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

22-JAN-2007 06:25 bkg 0.0040 | | |

-- Multi-Test Full Report --

Description : 5320, U-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0050	| | |

-- Multi-Test Full Report --

Description : 5423, Th-228 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0050	| | |

-- Multi-Test Full Report --

Description : 5486, Am-241 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0020	| | |

-- Multi-Test Full Report --

Description : 5499, Pu-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0020	| | |

-- Multi-Test Full Report --

Description : 5770, Pu-236 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0110	| | |

-- Multi-Test Full Report --

Description : 5805, Cm-244 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0140	| | |

-- Multi-Test Full Report --

Description : 6113, Cm-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 06:25	bkg		0.0020	| | |

ALPHA

SAMPLE AND QC DATA

SEVERN TRENT STL

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

1/29/2007 9 50:35 AM

Lot No., Due Date: J7A090287,J7A100115,J7A100118; 02/06/2007

Client, Site: 536403; AIR MONITORING Yerington Mine

QC Batch No., Method Test: 7011221; RALPHA-A Alpha by GPC-Am

SDG, Matrix: 33442,33443,33444; FILTER

1.0 COC

1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	Yes ✓	No	N/A

2.0 QC Batch

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	Yes ✓	No	N/A
2.2 Are the QC appropriate for the analysis included in the batch?	Yes ✓	No	N/A
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	Yes ✓	No	N/A
2.4 Does the Worksheets include a Tracer Vial label for each sample?	Yes	No	N/A ✓

3.0 QC & Samples

3.1 Is the blank results, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.2 Is the LCS result, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.3 Are the MS/MSD results, yields, and MDA within contract limits?	Yes	No	N/A ✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?	Yes	No	N/A ✓
3.5 Are the sample yields and MDAs within contract limits?	Yes ✓	No	N/A

4.0 Raw Data

4.1 Were results calculated in the correct units?	Yes ✓	No	N/A
4.2 Were analysis volumes entered correctly?	Yes ✓	No	N/A
4.3 Were Yields entered correctly?	Yes	No	N/A ✓
4.4 Were spectra reviewed/meet contractual requirements?	Yes	No	N/A ✓
4.5 Were raw counts reviewed for anomalies?	Yes	No	N/A ✓

5.0 Other

5.1 Are all nonconformances included and noted?	Yes	No	N/A ✓
5.2 Are all required forms filled out?	Yes ✓	No	N/A
5.3 Was the correct methodology used?	Yes ✓	No	N/A
5.4 Was transcription checked?	Yes ✓	No	N/A
5.5 Were all calculations checked at a minimum frequency?	Yes ✓	No	N/A
5.6 Are worksheet entries complete and correct?	Yes ✓	No	N/A

6.0 Comments on any No response:

First Level Review [signature] Pam Anderson **Date** 1/29/07

1-29-07

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 701221

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?			✓
C. Other 1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: Sheryl A Adam Date: 1-29-07

STL RICHLAND

1/15/2007 12:30:46 PM

Sample Preparation/Analysis

Balance Id:1120373922

536403, Brown and Caldwell , Brown &

BA Gross Alpha PrpRC5016/5014
S7 Gross Alpha by GPC using Am-241 curve
01 STANDARD TEST SET

Pipet #: _____

AnalyDueDate: 02/05/2007

Sep1 DT/Tm Tech.

Batch: 7011221 FILTER pCi/sampl PM, Quote: SA , 63174

SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: WoodT / APA

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 JMK81-1-AE J7A090287-1-SAMP 12/05/2006 12:25	0.833sa,g AmtRec: FILTER	12.57g,in #Containers: 1		1.5	1.0		10A Scr:	2107 Alpha:	1/23/07 DD Beta:	
2 JMLA1-1-AE J7A090287-2-SAMP 12/05/2006 12:10	0.833sa,g AmtRec: FILTER	12.53g,in #Containers: 1			0.8		10B Scr:	Alpha:	Beta:	
3 JMLA4-1-AE J7A090287-3-SAMP 12/05/2006 12:45	0.833sa,g AmtRec: FILTER	12.55g,in #Containers: 1			0.7		10C Scr:	Alpha:	Beta:	
4 JMLA7-1-AE J7A090287-4-SAMP 12/05/2006 12:30	0.833sa,g AmtRec: FILTER	12.52g,in #Containers: 1			0.7	1/15/07	10D Scr:	Alpha:	Beta:	
5 JMLA8-1-AE J7A090287-5-SAMP 12/05/2006 12:50	0.833sa,g AmtRec: FILTER	12.59g,in #Containers: 1			0.9		10F Scr:	Alpha:	Beta:	
6 JMLT2-1-AE J7A100115-1-SAMP 12/11/2006 11:40	0.833sa,g AmtRec: FILTER	12.51g,in #Containers: 1			1.1		10A Scr:	1242 Alpha:	1/24/07 r Beta:	
7 JMLT6-1-AE J7A100115-2-SAMP 12/11/2006 12:00	0.833sa,g AmtRec: FILTER	12.60g,in #Containers: 1			0.8		10B Scr:	Alpha:	Beta:	

STL RICHLAND

1/15/2007 12:30:47 PM

Sample Preparation/Analysis

Balance Id:1120373922

536403, Brown and Caldwell , Brown & Caldwell

BA Gross Alpha PrpRC5016/5014
S7 Gross Alpha by GPC using Am-241 curve
01 STANDARD TEST SET

Pipet #: _____

AnalyDueDate: 02/05/2007

Sep1 DT/Tm Tech:

Batch: 7011221 FILTER pCi/sampl
SEQ Batch, Test: None

PM, Quote: SA , 63174

Sep2 DT/Tm Tech:

Prep Tech: WoodT

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
8 JMLT7-1-AE J7A100115-3-SAMP 12/11/2006 12:15	0.833sa,g	12.59g,in AmtRec: FILTER	#Containers: 1	1.5	0.7	1/17/07 1500	10c Scr:	1242 Alpha:	1/24/07 rc Beta:	
9 JMLT8-1-AE J7A100115-4-SAMP 12/11/2006 11:45	0.833sa,g	12.55g,in AmtRec: FILTER	#Containers: 1		0.5		10d Scr:	Alpha:	Beta:	
10 JMLVA-1-AE J7A100115-5-SAMP 12/11/2006 12:20	0.833g	12.59g,in AmtRec: FILTER	#Containers: 1		1.0		10F Scr:	Alpha:	Beta:	
11 JMLVW-1-AE J7A100118-1-SAMP 12/13/2006 12:10	0.833g	12.58g,in AmtRec: FILTER	#Containers: 1		0.9		10A Scr:	1528 Alpha:	1/24/07 rc Beta:	
12 JMLV3-1-AE J7A100118-2-SAMP 12/13/2006 12:43	0.833sa,g	12.53g,in AmtRec: FILTER	#Containers: 1		1.0		10B Scr:	Alpha:	Beta:	
13 JMLV5-1-AE J7A100118-3-SAMP 12/13/2006 13:15	0.833sa,g	12.59g,in AmtRec: FILTER	#Containers: 1		0.7		10C Scr:	Alpha:	Beta:	
14 JMLV8-1-AE J7A100118-4-SAMP 12/13/2006 13:18	0.833sa,g	12.52g,in AmtRec: FILTER	#Containers: 1		0.8		10d Scr:	Alpha:	Beta:	

STL RICHLAND

1/15/2007 12:30:48 PM

Sample Preparation/Analysis

Balance Id:1120373922

536403, Brown and Caldwell , Brown & Caldwell

BA Gross Alpha PrpRC5016/5014
S7 Gross Alpha by GPC using Am-241 curve
01 STANDARD TEST SET

Pipet #: _____

AnalyDueDate: 02/05/2007

Sep1 DT/Tm Tech:

Batch: 7011221 **FILTER** **pCi/sampl**

SEQ Batch, Test: None

PM, Quote: SA , 63174

Sep2 DT/Tm Tech:

Prep Tech: WoodT

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
15 JMLV9-1-AE J7A100118-5-SAMP 12/13/2006 13:21	0.833sa,g	12.54g,in AmtRec: FILTER	 #Containers: 1	1.5	0.8	150	10F Scr:	1528 Alpha:	1/24/07 IK Beta:	
16 JMN8V-1-AA-B J7A110000-221-BLK 12/05/2006 12:25		12.59g,in AmtRec:	 #Containers: 1		0.4	1/15/07	10B Scr:	1818 Alpha:	 Beta:	
17 JMN8V-1-AC-C J7A110000-221-LCS 12/05/2006 12:25		12.55g,in AmtRec:	ASC0424 12/18/06,pd 02/09/06,r #Containers: 1		0.5		10A Scr:	 Alpha:	 Beta:	

Comments:

1% colloidin added to eq. samp. 1/23/07 APA

All Clients for Batch:
536403, Brown and Caldwell Brown & Caldwell , SA , 63174

JMK811AE-SAMP Constituent List:
ALPHA RDL:20 pCi/sam LCL: UCL: RPD:
JMN8V1AA-BLK:
ALPHA RDL:20 pCi/sam LCL: UCL: RPD:
JMN8V1AC-LCS:

JMK811AE-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JMN8V1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JMN8V1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

1/15/2007 12:30:51 PM

Sample Preparation/Analysis

BA Gross Alpha PrpRC5016/5014
S7 Gross Alpha by GPC using Am-241 curve
01 STANDARD TEST SET

Balance Id:1120373922

Pipet #: _____

AnalyDueDate: 02/05/2007

Batch: 7011221
SEQ Batch, Test: None

pCi/sampl

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: ,WoodT

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:

Approved By _____ Date: _____

1/29/2007 9:51:30 AM

ICOC Fraction Transfer/Status Report

ByDate: 1/29/2006, 2/3/2007, Batch: '7011221', User: *ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting		Comments
7011221						
AC			CalcC	WoodT	1/15/2007 10:14:21	
SC				wagarr	IsBatched 1/11/2007 11:25:28 AM	ICOC_RADCALC v4.8.26
SC				WoodT	InPrep 1/15/2007 10:14:21 AM	RICH-RC-5016 Revision 5
SC				WoodT	Prep1C 1/15/2007 12:31:51 PM	RICH-RC-5016 REVISION 5
SC				AshworthA	InPrep2 1/23/2007 9:56:03 AM	RICH-RC-5014 REVISION 6
SC				AshworthA	Prep2C 1/23/2007 4:52:32 PM	RICH-RC-5014 REVISION 6
SC				DAWKINSO	InCnt1 1/23/2007 5:13:57 PM	RICH-RD-0003 REVISION 4
SC				DAWKINSO	CalcC 1/24/2007 8:37:07 PM	RICH-RD-0003 REVISION 4
AC				**WoodT**	1/15/2007 12:31:51	
AC				**AshworthA**	1/23/2007 9:56:03	
AC				**AshworthA**	1/23/2007 4:52:32 PM	
AC				**DAWKINSO**	1/23/2007 5:13:57 PM	
AC				**DAWKINSO**	1/24/2007 8:37:07 PM	

AC: Accepting Entry, SC: Status Change

1/29/2007 9:51:19 AM

Rpt DB Transfer log (Batch Results)

SDG or Batch / Isotope	Rpt Db Id / Method	RTst	Qc	LotSample / Analysis Date	Client Id / Result	Matrix Cnt Uncert	Received Date Tot Uncert	Mda	Sample Date / Units	Expected	Yield	Volumes
33442	**9JMK8110**			**J7A0902871**	P-0812	FILTER	1/8/2007 10:00:00		12/5/2006 12:25:00 PM			
ALPHA	BAS7	0		1/23/2007 7:52:27 PM	**7.3565E+00**	1.942E+00	2.126E+00	5.371E+00	PCI/SA	1.0	1.0E+0	1.971E-2
TH-228	9NS1	0		1/17/2007 10:03:53 PM	**3.9481E-06**	8.376E-02	8.376E-02	4.25E-01	PCI/SA	0.953	1.0E+0	7.881E-2
TH-230	9NS1	0		1/17/2007 10:03:53 PM	**3.0258E-01**	1.086E-01	1.116E-01	2.269E-01	PCI/SA	0.953	1.0E+0	7.881E-2
TH-232	9NS1	0		1/17/2007 10:03:53 PM	**-3.7821E-02**	4.632E-02	4.643E-02	2.784E-01	PCI/SA	0.953	1.0E+0	7.881E-2
33442	**9JMLA110**			**J7A0902872**	P-0813	FILTER	1/8/2007 10:00:00		12/5/2006 12:10:00 PM			
ALPHA	BAS7	0		1/23/2007 7:52:27 PM	**5.0205E+00**	1.488E+00	1.593E+00	3.811E+00	PCI/SA	1.0	1.0E+0	2.076E-2
TH-228	9NS1	0		1/17/2007 10:04:06 PM	**7.7868E-02**	1.828E-01	1.829E-01	8.388E-01	PCI/SA	0.438	1.0E+0	8.298E-2
TH-230	9NS1	0		1/17/2007 10:04:06 PM	**2.2391E-01**	1.346E-01	1.362E-01	4.477E-01	PCI/SA	0.438	1.0E+0	8.298E-2
TH-232	9NS1	0		1/17/2007 10:04:06 PM	**0.0E+00**	0.0E+00	8.345E-02	4.477E-01	PCI/SA	0.438	1.0E+0	8.298E-2
33442	**9JMLA410**			**J7A0902873**	P-0814	FILTER	1/8/2007 10:00:00		12/5/2006 12:45:00 PM			
ALPHA	BAS7	0		1/23/2007 7:52:27 PM	**1.021E+01**	2.124E+00	2.428E+00	5.17E+00	PCI/SA	1.0	1.0E+0	2.024E-2
TH-228	9NS1	0		1/17/2007 10:04:25 PM	**1.8576E-01**	1.273E-01	1.283E-01	4.461E-01	PCI/SA	0.833	1.0E+0	8.115E-2
TH-230	9NS1	0		1/17/2007 10:04:25 PM	**1.271E-01**	9.165E-02	9.234E-02	3.05E-01	PCI/SA	0.833	1.0E+0	8.115E-2
TH-232	9NS1	0		1/17/2007 10:04:25 PM	**-2.5423E-02**	5.684E-02	5.689E-02	3.05E-01	PCI/SA	0.833	1.0E+0	8.115E-2
33442	**9JMLA710**			**J7A0902874**	P-0815	FILTER	1/8/2007 10:00:00		12/5/2006 12:30:00 PM			
ALPHA	BAS7	0		1/23/2007 7:52:27 PM	**8.5202E+00**	1.921E+00	2.163E+00	4.521E+00	PCI/SA	1.0	1.0E+0	2.008E-2
TH-228	9NS1	0		1/17/2007 10:04:10 PM	**1.636E-01**	8.016E-02	8.133E-02	2.01E-01	PCI/SA	0.996	1.0E+0	8.039E-2
TH-230	9NS1	0		1/17/2007 10:04:10 PM	**9.5367E-02**	5.94E-02	5.994E-02	1.632E-01	PCI/SA	0.996	1.0E+0	8.039E-2
TH-232	9NS1	0		1/17/2007 10:04:10 PM	**2.044E-02**	3.54E-02	3.544E-02	1.925E-01	PCI/SA	0.996	1.0E+0	8.039E-2
33442	**9JMLA810**			**J7A0902875**	000580	FILTER	1/8/2007 10:00:00		12/5/2006 12:50:00 PM			
ALPHA	BAS7	0		1/23/2007 7:52:27 PM	**1.2459E+01**	2.199E+00	2.634E+00	4.493E+00	PCI/SA	1.0	1.0E+0	2.094E-2
TH-228	9NS1	0		1/17/2007 10:04:38 PM	**1.1513E-01**	7.339E-02	7.403E-02	2.472E-01	PCI/SA	0.893	1.0E+0	8.345E-2
TH-230	9NS1	0		1/17/2007 10:04:38 PM	**3.6534E-01**	1.147E-01	1.188E-01	1.948E-01	PCI/SA	0.893	1.0E+0	8.345E-2
TH-232	9NS1	0		1/17/2007 10:04:38 PM	**2.757E-02**	3.515E-02	3.523E-02	1.651E-01	PCI/SA	0.893	1.0E+0	8.345E-2
33443	**9JMLT210**			**J7A1001151**	P-0816	FILTER	1/8/2007 10:00:00		12/11/2006 11:40:00 AM			
ALPHA	BAS7	0		1/24/2007 11:27:16	**2.4671E+01**	3.073E+00	4.223E+00	4.533E+00	PCI/SA	1.0	1.0E+0	1.987E-2
TH-228	9NS1	0		1/17/2007 10:04:53 PM	**6.9525E-02**	8.978E-02	8.998E-02	3.897E-01	PCI/SA	1.034	1.0E+0	7.981E-2
TH-230	9NS1	0		1/17/2007 10:04:53 PM	**1.7867E-01**	9.209E-02	9.337E-02	2.679E-01	PCI/SA	1.034	1.0E+0	7.981E-2
TH-232	9NS1	0		1/17/2007 10:04:53 PM	**4.4668E-02**	4.994E-02	5.009E-02	2.679E-01	PCI/SA	1.034	1.0E+0	7.981E-2
33443	**9JMLT610**			**J7A1001152**	P-0817	FILTER	1/8/2007 10:00:00		12/11/2006 12:00:00 PM			
ALPHA	BAS7	0		1/24/2007 11:27:16	**1.7047E+01**	2.595E+00	3.236E+00	4.148E+00	PCI/SA	1.0	1.0E+0	1.972E-2
TH-228	9NS1	0		1/17/2007 10:05:00 PM	**3.2653E-01**	1.361E-01	1.391E-01	3.264E-01	PCI/SA	0.925	1.0E+0	7.84E-2
TH-230	9NS1	0		1/17/2007 10:05:00 PM	**3.1463E-01**	1.311E-01	1.34E-01	3.145E-01	PCI/SA	0.925	1.0E+0	7.84E-2
TH-232	9NS1	0		1/17/2007 10:05:00 PM	**0.0E+00**	0.0E+00	5.863E-02	3.145E-01	PCI/SA	0.925	1.0E+0	7.84E-2
33443	**9JMLT710**			**J7A1001153**	P-0818	FILTER	1/8/2007 10:00:00		12/11/2006 12:15:00 PM			
ALPHA	BAS7	0		1/24/2007 11:27:16	**2.0458E+01**	2.807E+00	3.665E+00	4.808E+00	PCI/SA	1.0	1.0E+0	1.987E-2
TH-228	9NS1	0		1/17/2007 10:06:45 PM	**1.0138E-01**	8.838E-02	8.88E-02	3.408E-01	PCI/SA	1.003	1.0E+0	7.935E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	**1.9537E-02**	4.368E-02	4.372E-02	2.344E-01	PCI/SA	1.003	1.0E+0	7.935E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	**-1.9536E-02**	4.368E-02	4.372E-02	2.344E-01	PCI/SA	1.003	1.0E+0	7.935E-2
33443	**9JMLT810**			**J7A1001154**	P-0819	FILTER	1/8/2007 10:00:00		12/11/2006 11:45:00 AM			
ALPHA	BAS7	0		1/24/2007 11:27:16	**1.0219E+00**	9.422E-01	9.498E-01	3.921E+00	PCI/SA	1.0	1.0E+0	2.078E-2
TH-228	9NS1	0		1/17/2007 10:06:45 PM	**5.0395E-02**	7.968E-02	7.98E-02	3.709E-01	PCI/SA	0.746	1.0E+0	8.314E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	**9.7115E-02**	9.084E-02	9.125E-02	3.574E-01	PCI/SA	0.746	1.0E+0	8.314E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	**-2.4278E-02**	5.429E-02	5.433E-02	2.912E-01	PCI/SA	0.746	1.0E+0	8.314E-2
33444	**9JMLV310**			**J7A1001182**	P-0821	FILTER	1/8/2007 10:00:00		12/13/2006 12:43:00 PM			
ALPHA	BAS7	0		1/24/2007 2:12:29 PM	**6.7087E+00**	1.697E+00	1.86E+00	3.988E+00	PCI/SA	1.0	1.0E+0	2.057E-2
TH-228	9NS1	0		1/17/2007 10:06:45 PM	**2.1713E-01**	9.95E-02	1.013E-01	2.605E-01	PCI/SA	0.883	1.0E+0	8.297E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	**1.4675E-01**	8.644E-02	8.737E-02	2.515E-01	PCI/SA	0.883	1.0E+0	8.297E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	**1.2578E-01**	7.559E-02	7.637E-02	2.515E-01	PCI/SA	0.883	1.0E+0	8.297E-2
33444	**9JMLV510**			**J7A1001183**	P-0822	FILTER	1/8/2007 10:00:00		12/13/2006 1:15:00 PM			
ALPHA	BAS7	0		1/24/2007 2:12:29 PM	**5.6103E+00**	1.643E+00	1.766E+00	4.653E+00	PCI/SA	1.0	1.0E+0	2.053E-2

7011221,7011221, **Samples Inserted | Updated | NotUpdated => 2 | 0 | 15,
**Results Inserted | ReTestInserted | Updated | NotInserted => 17 | 0 | 0 | 0.
**Diff RptDb | Qtims => .

SDG or Batch / Isotope	Rpt Db Id / Method	RTst	Qc	LotSample / Analysis Date	Client Id / Result	Matrix / Cnt Uncert	Received Date / Tot Uncert	MDA	Sample Date / Units	Expected	Yield	Volumes	
TH-228	9NS1	0		1/17/2007 10:06:45 PM	-4.4948E-02	6.357E-02	6.369E-02	4.174E-01	PCI/SA		0.869	1.0E+0	8.203E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	3.472E-01	1.247E-01	1.283E-01	2.603E-01	PCI/SA		0.869	1.0E+0	8.203E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	0.0E+00	0.0E+00	4.852E-02	2.603E-01	PCI/SA		0.869	1.0E+0	8.203E-2
33444	**9JMLV810**			**J7A1001184**	P-0824	FILTER	1/8/2007 10:00:00		12/13/2006 1:18:00 PM				
ALPHA	BAS7	0		1/24/2007 2:12:29 PM	3.332E-02	7.576E-01	7.576E-01	3.963E+00	PCI/SA		1.0	1.0E+0	2.066E-2
TH-228	9NS1	0		1/17/2007 10:06:45 PM	0.0E+00	0.0E+00	8.769E-02	4.705E-01	PCI/SA		0.55	1.0E+0	8.28E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	1.136E-01	1.136E-01	1.141E-01	4.542E-01	PCI/SA		0.55	1.0E+0	8.28E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	1.136E-01	1.136E-01	1.141E-01	4.542E-01	PCI/SA		0.55	1.0E+0	8.28E-2
33444	**9JMLV910**			**J7A1001185**	P-0582	FILTER	1/8/2007 10:00:00		12/13/2006 1:21:00 PM				
ALPHA	BAS7	0		1/24/2007 2:12:29 PM	4.1991E+00	1.476E+00	1.555E+00	4.504E+00	PCI/SA		1.0	1.0E+0	2.041E-2
TH-228	9NS1	0		1/17/2007 10:06:45 PM	8.0735E-02	6.055E-02	6.094E-02	2.421E-01	PCI/SA		0.905	1.0E+0	8.161E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	3.5078E-01	1.185E-01	1.223E-01	2.338E-01	PCI/SA		0.905	1.0E+0	8.161E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	0.0E+00	0.0E+00	4.358E-02	2.338E-01	PCI/SA		0.905	1.0E+0	8.161E-2
33443	**9JMLVA10**			**J7A1001155**	000581	FILTER	1/8/2007 10:00:00		12/11/2006 12:20:00 PM				
ALPHA	BAS7	0		1/24/2007 11:27:16	2.6821E+01	3.115E+00	4.452E+00	4.498E+00	PCI/SA		1.0	1.0E+0	2.05E-2
TH-228	9NS1	0		1/17/2007 10:06:45 PM	2.3414E-01	1.352E-01	1.369E-01	4.373E-01	PCI/SA		0.864	1.0E+0	8.202E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	2.5068E-01	1.149E-01	1.171E-01	3.007E-01	PCI/SA		0.864	1.0E+0	8.202E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	1.5041E-01	9.038E-02	9.143E-02	3.007E-01	PCI/SA		0.864	1.0E+0	8.202E-2
33444	**9JMLVW10**			**J7A1001181**	P-0820	FILTER	1/8/2007 10:00:00		12/13/2006 12:10:00 PM				
ALPHA	BAS7	0		1/24/2007 2:12:29 PM	4.4092E+00	1.473E+00	1.564E+00	4.308E+00	PCI/SA		1.0	1.0E+0	2.084E-2
TH-228	9NS1	0		1/17/2007 10:06:45 PM	8.4482E-02	8.448E-02	8.484E-02	3.378E-01	PCI/SA		0.801	1.0E+0	8.348E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	2.447E-01	1.246E-01	1.266E-01	3.262E-01	PCI/SA		0.801	1.0E+0	8.348E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	5.4377E-02	6.079E-02	6.1E-02	3.262E-01	PCI/SA		0.801	1.0E+0	8.348E-2
33442	**JMN8V1AB**			**J7A110000221**	INTRA-LAB BLANK	FILTER	1/8/2007 10:00:00		12/5/2006 12:25:00 PM				
ALPHA	BAS7	0	B	1/24/2007 5:03:07 PM	2.2397E-04	1.262E-03	1.262E-03	6.457E-03	PCI/SA		1.0	1.0E+0	1.259E+1
33442	**JMN8V1CS**			**J7A110000221**	INTRA-LAB CHECK	FILTER	1/8/2007 10:00:00		12/5/2006 12:25:00 PM				
ALPHA	BAS7	0	S	1/24/2007 5:03:07 PM	1.6666E-01	9.685E-03	2.184E-02	7.113E-03	PCI/SA	1.793E-01	1.0	1.0E+0	1.255E+1

7011221,7011221, **Samples Inserted | Updated | NotUpdated => 2 | 0 | 15,
**Results Inserted | ReTestInserted | Updated | NotInserted => 17 | 0 | 0 | 0.
**Diff RptDb | Qtims => .

Batch Nbr: 7011221

Alpha Beta, Alpha by GPC-Am , Results Summary Report

1/24/2007 7:57:38 PM

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYld
Alpha by GPC-Am			Richland Standard Gross Alpha/Beta Wo Blk Subt											
Calc	S7	FILTER	JMK811AE	ALPHA	7.36E+00	(2.13E+00)		PCI/SA	R	2.21E+00	5.37E+00		100%	
Calc	S7	FILTER	JMLA11AE	ALPHA	5.02E+00	(1.59E+00)		PCI/SA	R	1.44E+00	3.81E+00		100%	
Calc	S7	FILTER	JMLA41AE	ALPHA	1.02E+01	(2.43E+00)		PCI/SA	R	2.13E+00	5.17E+00		100%	
Calc	S7	FILTER	JMLA71AE	ALPHA	8.52E+00	(2.16E+00)		PCI/SA	R	1.80E+00	4.52E+00		100%	
Calc	S7	FILTER	JMLA81AE	ALPHA	1.25E+01	(2.63E+00)		PCI/SA	R	1.81E+00	4.49E+00		100%	
Calc	S7	FILTER	JMLT21AE	ALPHA	2.47E+01	(4.22E+00)		PCI/SA	R	1.79E+00	4.53E+00		100%	
Calc	S7	FILTER	JMLT61AE	ALPHA	1.70E+01	(3.24E+00)		PCI/SA	R	1.59E+00	4.15E+00		100%	
Calc	S7	FILTER	JMLT71AE	ALPHA	2.05E+01	(3.67E+00)		PCI/SA	R	1.94E+00	4.81E+00		100%	
Calc	S7	FILTER	JMLT81AE	ALPHA	1.02E+00	(9.50E-01)	U4	PCI/SA	R	1.51E+00	3.92E+00		100%	
Calc	S7	FILTER	JMLVA1AE	ALPHA	2.68E+01	(4.45E+00)		PCI/SA	R	1.80E+00	4.50E+00		100%	
Calc	S7	FILTER	JMLVW1AE	ALPHA	4.41E+00	(1.56E+00)		PCI/SA	R	1.70E+00	4.31E+00		100%	
Calc	S7	FILTER	JMLV31AE	ALPHA	6.71E+00	(1.86E+00)		PCI/SA	R	1.53E+00	3.99E+00		100%	
Calc	S7	FILTER	JMLV51AE	ALPHA	5.61E+00	(1.77E+00)		PCI/SA	R	1.88E+00	4.65E+00		100%	
Calc	S7	FILTER	JMLV81AE	ALPHA	3.33E-02	(7.58E-01)	U4	PCI/SA	R	1.53E+00	3.96E+00		100%	
Calc	S7	FILTER	JMLV91AE	ALPHA	4.20E+00	(1.55E+00)		PCI/SA	R	1.80E+00	4.50E+00		100%	
Calc	S7	FILTER	JMN8V1AA	ALPHA	2.24E-04	(1.26E-03)	U4	PCI/SA	R	2.47E-03	6.46E-03	B	100%	
Calc	S7	FILTER	JMN8V1AC	ALPHA	1.67E-01	(2.18E-02)		PCI/SA	R	2.81E-03	7.11E-03	S	100%	93%

Reviewed
1-29-07

() - (1s Uncertainities)
IDC - Instrument Detection Level in Conc Units
MLcC- Method Decision Level in Conc Units
MDC - Minimum Detectable Concentration
*Std - Lc, MDC using StdDev for Set of Blanks

Q - Qualifier, U is Less Than Lc = 1.645*TPU
All Results Displayed to Three Digits Reguardless of Significants
Date/Time - mm/dd/yy hh.mm, 24hr Time

RecCnt:17
RADCALC v4.8.26
STL Richland

Batch Nbr: 7011221

Alpha Beta, Alpha by GPC-Am , Calculated Results

Detailed Report

1/24/2007 7:57:39 PM

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
1	Calc	S7	FILTER	*STLE	GabWoBS	JMK811AE	PCI/SA		12/05/06 12:25	01/23/07 19:52			1	1.00 Sa	
536403,P-0812					,J7A090287-1 v4.8.26		FILTER			01.0				0.019713 Sa	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/23/07 21:07	ALPHA	28	24	GPC10A	1.5	N	N	4.3071E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			150	500			Y		(2.951E-02)	(0.000E+00)		8%			(0.000E+00)	50.726735		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/24/07	ALPHA	R	**7.356469**		1.38667E-01	0.321948	0.321948	1.00 Sa	100%		5.371375		
				(2.125818)		(3.6612E-02)	(0.091518)	(0.091518)	(0.014142)			2.207767		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
2	Calc	S7	FILTER	*STLE	GabWoBS	JMLA11AE	PCI/SA		12/05/06 12:10	01/23/07 19:52			1	1.00 Sa	
536403,P-0813					,J7A090287-2 v4.8.26		FILTER			00.8				0.020762 Sa	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/23/07 21:07	ALPHA	18	11	GPC10B	1.5	N	N	4.2349E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			150	500			Y		(2.597E-02)	(0.000E+00)		8%			(0.000E+00)	48.163878		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/24/07	ALPHA	R	**5.020511**		9.80000E-02	0.231409	0.231409	1.00 Sa	100%		3.810514		
				(1.59349)		(2.9052E-02)	(0.072457)	(0.072457)	(0.014142)			1.443339		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
3	Calc	S7	FILTER	*STLE	GabWoBS	JMLA41AE	PCI/SA		12/05/06 12:45	01/23/07 19:52			1	1.00 Sa	
536403,P-0814					,J7A090287-3 v4.8.26		FILTER			00.7				0.020239 Sa	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/23/07 21:07	ALPHA	38	25	GPC10C	1.5	N	N	4.4325E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			150	500			Y		(2.861E-02)	(0.000E+00)		8%			(0.000E+00)	49.410043		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/24/07	ALPHA	R	**10.209895**		2.03333E-01	0.458732	0.458732	1.00 Sa	100%		5.170073		
				(2.42758)		(4.2295E-02)	(0.106435)	(0.106435)	(0.014142)			2.132716		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
4	Calc	S7	FILTER	*STLE	GabWoBS	JMLA71AE	PCI/SA		12/05/06 12:30	01/23/07 19:52			1	1.00 Sa	
536403,P-0815					,J7A090287-4 v4.8.26		FILTER			00.7				0.020082 Sa	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/23/07 21:07	ALPHA	30	17	GPC10D	1.5	N	N	4.3701E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			150	500			Y		(2.932E-02)	(0.000E+00)		8%			(0.000E+00)	49.794998		

() - (1s Uncertainities), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU

IDC - Instrument Detection Level in Conc Units, MLcC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration

Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significants, Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:4

RADCALC v4.8.26

STL Richland

STL RICHLAND

Batch Nbr: 7011221 — # Alpha Beta, Alpha by GPC-Am , Calculated Results — 1/24/2007 7:57:39 PM

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	01/24/07	ALPHA	R	**8.520226**		1.66000E-01	0.379856	0.379856	1.00 Sa	100%		4.520571		
				(2.163138)		(3.7434E-02)	(0.094397)	(0.094397)	(0.014142)			1.797702		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
5	Calc	S7	FILTER	*STLE	GabWoBS	**JMLA81AE**	**PCI/SA**		12/05/06 12:50	01/23/07 19:52			1	1.00 Sa	
536403,000580					,J7A090287-5 v4.8.26		FILTER			00.9				0.020942 Sa	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/23/07 21:07	ALPHA	44	19	GPC10F	1.5	N	N	4.4081E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			150	500			Y		(2.933E-02)	(0.000E+00)		8%			(0.000E+00)	47.750315		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	01/24/07	ALPHA	R	**12.458965**		2.55333E-01	0.579241	0.579241	1.00 Sa	100%		4.492944		
				(2.633789)		(4.5073E-02)	(0.118693)	(0.118693)	(0.014142)			1.806764		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
6	Calc	S7	FILTER	*STLE	GabWoBS	**JMLT21AE**	**PCI/SA**		12/11/06 11:40	01/24/07 11:27			1	1.00 Sa	
536403,P-0816					,J7A100115-1 v4.8.26		FILTER			01.1				0.019869 Sa	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/24/07 12:42	ALPHA	75	16	GPC10A	1.5	N	N	4.3008E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			150	500			Y		(2.946E-02)	(0.000E+00)		8%			(0.000E+00)	50.330924		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	01/24/07	ALPHA	R	**24.670734**		4.68000E-01	1.08818	1.08818	1.00 Sa	100%		4.532681		
				(4.2233)		(5.8287E-02)	(0.177493)	(0.177493)	(0.014142)			1.79121		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
7	Calc	S7	FILTER	*STLE	GabWoBS	**JMLT61AE**	**PCI/SA**		12/11/06 12:00	01/24/07 11:27			1	1.00 Sa	
536403,P-0817					,J7A100115-2 v4.8.26		FILTER			00.8				0.019717 Sa	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/24/07 12:42	ALPHA	51	12	GPC10B	1.5	N	N	4.2349E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			150	500			Y		(2.597E-02)	(0.000E+00)		8%			(0.000E+00)	50.716477		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	01/24/07	ALPHA	R	**17.046551**		3.16000E-01	0.746175	0.746175	1.00 Sa	100%		4.147546		
				(3.23616)		(4.8111E-02)	(0.136246)	(0.136246)	(0.014142)			1.587414		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
8	Calc	S7	FILTER	*STLE	GabWoBS	**JMLT71AE**	**PCI/SA**		12/11/06 12:15	01/24/07 11:27			1	1.00 Sa	
536403,P-0818					,J7A100115-3 v4.8.26		FILTER			00.7				0.01987 Sa	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn

() - (1s Uncertainities), Q - Quatifier, U Result is Less Than Lc = 1.645 * TPU

RecCnt:8 RADCALC v4.8.26

IDC - Instrument Detection Level in Conc Units, MLcC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration

STL Richland

Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significants, Date/Time - mm/dd/yy hh:mm, 24hr Time

Batch Nbr: 7011221

Alpha Beta, Alpha by GPC-Am , Calculated Results

1/24/2007 7:57:40 PM

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/24/07	ALPHA	R	**4.19913**		8.40000E-02	0.19026	0.19026	1.00 Sa	100%		4.504275		
				(1.554871)		(2.9530E-02)	(0.069753)	(0.069753)	(0.014142)			1.801634		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
16	Calc	S7	FILTER	*STLE	GabWoBS	**JMN8V1AA**	**PCi/SA**	**B**	12/05/06 12:25	01/24/07 17:03			1	1.00 Sa	
0,INTRA	LAB BLANK				,J7A110000-221		FILTER			00.4				12.59 Sa	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/24/07 18:18	ALPHA	4	12	GPC10B	1.5	N	N	4.2599E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			150	500			Y		(2.612E-02)	(0.000E+00)		8%			(0.000E+00)	0.079428		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/24/07	ALPHA	R	**0.000224**	**U4**	2.66667E-03	0.00626	0.00626	1.00 Sa	100%		0.006457		
				(0.001262)		(1.5026E-02)	(0.035278)	(0.035278)	(0.014142)			0.002472		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
17	Calc	S7	FILTER	*STLE	GabWoBS	**JMN8V1AC**	**PCi/SA**	**S**	12/05/06 12:25	01/24/07 17:03		ASC0424	1	1.00 Sa	
0,INTRA	LAB CHECK				,J7A110000-221		FILTER			00.5		ASC0424 Alq		12.55 Sa	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/24/07 18:18	ALPHA	307	16	GPC10A	1.5	N	N	4.3390E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			150	500			Y		(2.973E-02)	(0.000E+00)		8%			(0.000E+00)	0.079681		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/24/07	ALPHA	R	**0.166655**		2.01467E+00	4.643191	4.643191	1.00 Sa	100%	93%	0.007113		
				(0.021838)		(1.1708E-01)	(0.558555)	(0.558555)	(0.014142)			0.002811		

() - (1s Uncertainities), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU

RecCnt:17

RADCALC v4.8.26

IDC - Instrument Detection Level in Conc Units, MLcC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration

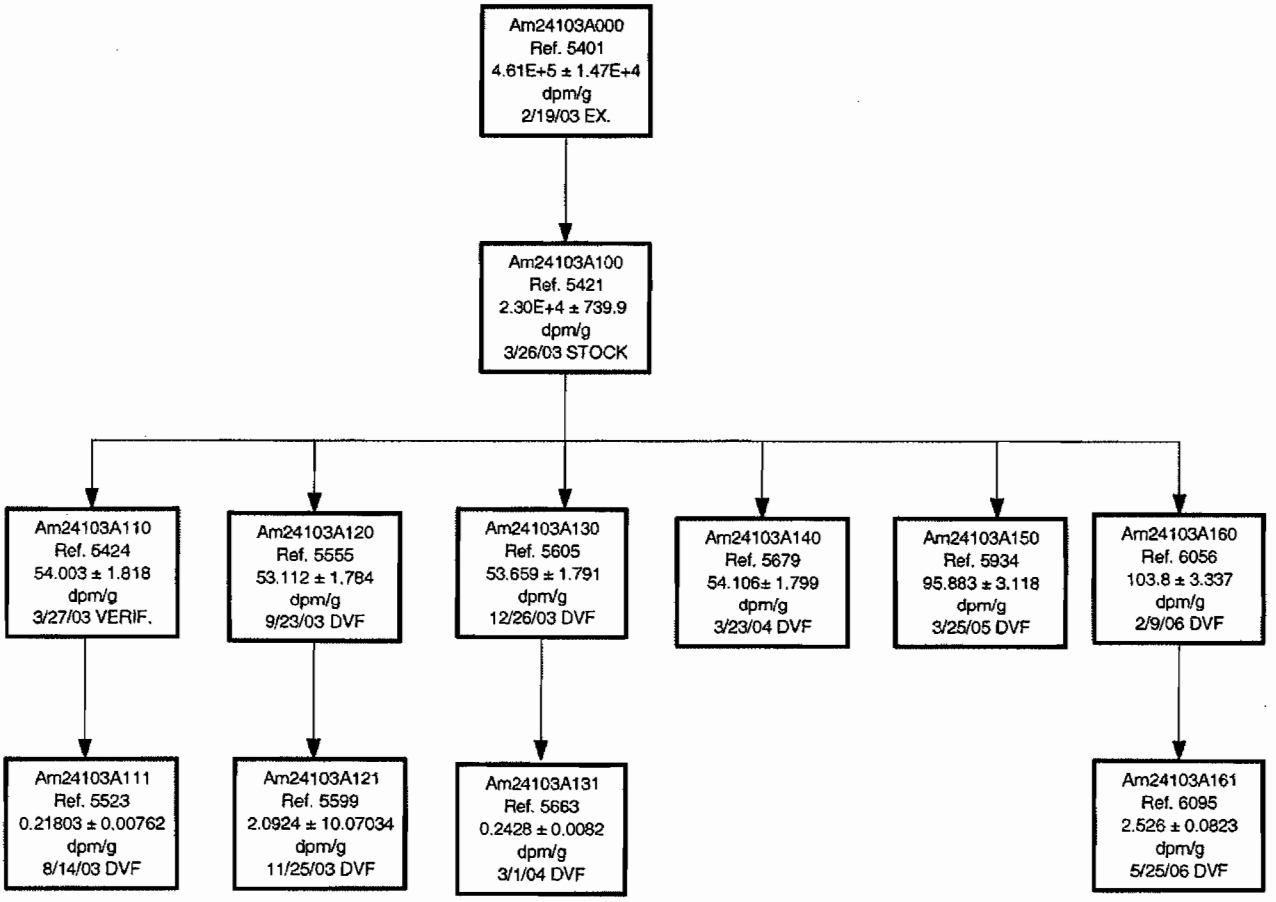
STL Richland

Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significants, Date/Time - mm/dd/yy hh:mm, 24hr Time

ALPHA

STANDARDS AND TRACEABILITY

AM24103A000



ISOTOPE DILUTION RECORD

1) Prepared by	tda	2) Date Prepared	2/9/2006
3) Source Identification Number / Ref. Number	***AM24103A100***		***5421***
4) Source Activity (dpm ± dpm/g)	2.2910E+04	±	7.365E-02
5) Percent error of Source Activity	3.215 %		
6) Weight of Source Material used (g)	1.0007		
7) (% Error) of Weight of Source Material used	0.4797 %		
8) Diluent	2 M HNO3		
9) Total Weight of the Dilution (g)	220.87		
10) (% Error) of Total Weight of the Dilution	0.1358 %		
11) Specific Activity of Diluted Solution dpm/g	***1.0380E+02***	±	***3.377E+00***
12) Total Uncertainty	3.253 %		
13) Dilution Identification Number / Ref. Number	***AM24103A160***		***6056***
14) Calibration Reference Date	2/9/2006		
15) Isotope Inventory File update by/date	tda		2/9/2006
16) Reviewed by/date			
17) Location qclab	18) Exhausted		

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CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = $\sqrt{(\%\ \text{error of Source Activity}^2 + \%\ \text{error of Wt. Used}^2 + \%\ \text{error of Dilution Wt.}^2)}$

Form: CC-006, 7/15/99, Rev 3

ISOTOPE DILUTION RECORD

1) Prepared by	W.G	2) Date Prepared	3/25/2005
3) Source Identification Number / Ref. Number	***AM24103A100***		***5421***
4) Source Activity (dpm ± dpm/g)	2.2940E+04	±	7.375E+02
5) Percent error of Source Activity	3.215 %		
6) Weight of Source Material used (g)	1.0186		
7) (% Error) of Weight of Source Material used	0.4712 %		
8) Diluent	2M HNO3-P0500135		
9) Total Weight of the Dilution (g)	243.7		
10) (% Error) of Total Weight of the Dilution	0.1231 %		
11) Specific Activity of Diluted Solution dpm/g	***9.5883E+01***	±	***3.118E+00***
12) Total Uncertainty	3.252 %		
13) Dilution Identification Number / Ref. Number	***AM24103A150***		***5934***
14) Calibration Reference Date	3/25/2005		
15) Isotope Inventory File update by/date	W.G		3/25/2005
16) Reviewed by/date	sew		3/28/2005
17) Location QCLAB/STWT1132	18) Exhausted		

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CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = $\sqrt{(\%\text{ error of Source Activity}^2 + \%\text{ error of Wt. Used}^2 + \%\text{ error of Dilution Wt.}^2)}$

Form: CC-006, 7/15/99, Rev 3

ISOTOPE DILUTION RECORD

1) Prepared by	W.G	2) Date Prepared	3/23/2004
3) Source Identification Number / Ref. Number	***AM24103A100***		***5421***
4) Source Activity (dpm ± dpm/g)	2.2977E+04	±	7.387E+02
5) Percent error of Source Activity	3.215 %		
6) Weight of Source Material used (g)	0.5744		
7) (% Error) of Weight of Source Material used	0.8357 %		
8) Diluent	2M HNO3-P0400085		
9) Total Weight of the Dilution (g)	243.93		
10) (% Error) of Total Weight of the Dilution	0.1230 %		
11) Specific Activity of Diluted Solution dpm/g	***5.4106E+01***	±	***1.799E+00***
12) Total Uncertainty	3.324 %		
13) Dilution Identification Number / Ref. Number	***AM24103A140***		***5679***
14) Calibration Reference Date	3/23/2004		
15) Isotope Inventory File update by/date	W.G		3/23/2004
16) Reviewed by/date	SEW		3/26/2004
17) Location QCLAB/STWT0942	18) Exhausted		

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CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = $\sqrt{(\%\ \text{error of Source Activity}^2 + \%\ \text{error of Wt. Used}^2 + \%\ \text{error of Dilution Wt.}^2)}$

Form: CC-006, 7/15/99, Rev 3

ISOTOPE DILUTION RECORD

1) Prepared by	W.G	2) Date Prepared	12/26/2003
3) Source Identification Number / Ref. Number	***AM24103A100***		***5421***
4) Source Activity (dpm ± dpm/g)	2.2986E+04	±	7.390E+02
5) Percent error of Source Activity	3.215 %		
6) Weight of Source Material used (g)	0.5414		
7) (% Error) of Weight of Source Material used	0.8866 %		
8) Diluent	2M HNO3-P0300705		
9) Total Weight of the Dilution (g)	231.92		
10) (% Error) of Total Weight of the Dilution	0.1294 %		
11) Specific Activity of Diluted Solution dpm/g	***5.3659E+01***	±	***1.791E+00***
12) Total Uncertainty	3.338 %		
13) Dilution Identification Number / Ref. Number	***AM24103A130***		***5605***
14) Calibration Reference Date	12/26/2003		
15) Isotope Inventory File update by/date	W.G		12/26/2003
16) Reviewed by/date	SEW		1/5/2004
17) Location QCLAB/STWT0894	18) Exhausted		

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CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = $\sqrt{(\%\text{ error of Source Activity}^2 + \%\text{ error of Wt. Used}^2 + \%\text{ error of Dilution Wt.}^2)}$

Form: CC-006, 7/15/99, Rev 3

ISOTOPE DILUTION RECORD

1) Prepared by	W.G	2) Date Prepared	9/23/2003
3) Source Identification Number / Ref. Number	***AM24103A100***		***5421***
4) Source Activity (dpm ± dpm/g)	2.2996E+04	±	7.393E+02
5) Percent error of Source Activity	3.215 %		
6) Weight of Source Material used (g)	0.4983		
7) (% Error) of Weight of Source Material used	0.9633 %		
8) Diluent	2M HNO3-P0300455		
9) Total Weight of the Dilution (g)	215.75		
10) (% Error) of Total Weight of the Dilution	0.1390 %		
11) Specific Activity of Diluted Solution dpm/g	***5.3112E+01***	±	***1.784E+00***
12) Total Uncertainty	3.359 %		
13) Dilution Identification Number / Ref. Number	***AM24103A120***		***5555***
14) Calibration Reference Date	9/23/2003		
15) Isotope Inventory File update by/date	W.G		9/23/2003
16) Reviewed by/date	SEW		9/24/2003
17) Location QCLAB/STWT0853	18) Exhausted		

CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = $\sqrt{(\%\text{ error of Source Activity}^2 + \%\text{ error of Wt. Used}^2 + \%\text{ error of Dilution Wt.}^2)}$

Form: CC-006, 7/15/99, Rev 3

ISOTOPE DILUTION RECORD

1) Prepared by	W.G	2) Date Prepared	3/26/03
3) Source Identification Number / Ref. Number	***AM24103A000***		***5401***
4) Source Activity (dpm ± dpm/g)	4.6049E+05	±	1.474E+04
5) Percent error of Source Activity	3.2 %		
6) Weight of Source Material used (g)	5.0651		
7) (% Error) of Weight of Source Material used	0.0948 %		
8) Diluent	2M HNO3-P0300164		
9) Total Weight of the Dilution (g)	101.35		
10) (% Error) of Total Weight of the Dilution	0.2960 %		
11) Specific Activity of Diluted Solution dpm/g	***2.3014E+04***	±	***7.399E+02***
12) Total Uncertainty	3.215 %		
13) Dilution Identification Number / Ref. Number	***AM24103A100***		***5421***
14) Calibration Reference Date	3/26/03		
15) Isotope Inventory File update by/date	W.G		3/26/03
16) Reviewed by/date	SEW		3/26/03
17) Location QCLAB/STWT0754	18) Exhausted		

****

CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = $\sqrt{(\%\text{ error of Source Activity }^2 + \%\text{ error of Wt. Used}^2 + \%\text{ error of Dilution Wt.}^2)}$

Form: CC-006, 7/15/99, Rev 3

ISOTOPE RECORD FORM

1) Isotope: Am-241 2) Reference Number: 5401

3) Half Life: 433 yrs. 4) Storage Location: Std. Lab

5) Source Identification Number: Am24103A000

****

CALIBRATION DATA

6) Activity as Received Units: 3.923E+04 dps

7) Overall Uncertainty Percent: 3.2%

8) Reference Date / Time: 19-FEB-03 12:00 EST (9:00AM)

9) Activity dpm/g: 4.6056E+5 ± 1.4740E+4 dpm/g

10) Volume or Mass (ml/g): 5.11069 g

11) Calibrated by: ANALYTICS

12) Certificate Solution Number: 65621-310

****

SURVEY DATA

13) Date Received: 2/24/03

14) Surveyed by: W.G

15) Survey Reading (Beta/Gamma) cpm: <100 outside of surface

16) Survey Reading (Alpha) cpm: <100 outside of surface

****

17) Activity Conversion 3.923E+04dps*60s/m/5.011069g = 4.606E+05 ± 1.474E+04 dpm/g

18) Remarks

19) Isotope File Updated by: W.G 2/24/03

20) QC Approved: SEW 3/11/03

ANALYTICS

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318 · U.S.A.
Phone (404) 352-8677
Fax (404) 352-2837

#5401
Rec'd 2/24/03

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

65621-310

Am-241 5 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated by liquid scintillation counting.

Radionuclide purity and calibration were checked by germanium gamma-ray spectrometry and liquid scintillation counting. The nuclear decay rate and assay date for this source are given below.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

ISOTOPE:	Am-241
ACTIVITY (dps):	3.923 E4
HALF-LIFE:	4.322 E2 years
CALIBRATION DATE:	February 19, 2003 12:00 EST
TOTAL UNCERTAINTY*:	3.2%
SYSTEMATIC:	2.2%
RANDOM:	1.0%

*99% confidence level.

5.11069 grams 1M HCl solution.

Impurities: γ-impurities <0.1%
α-impurities <0.1%

P O NUMBER 1703541-000 OP, Item 1

SOURCE PREPARED BY: M Taskaeva
M. Taskaeva, Radiochemist

Q A APPROVED: M. Mt 2-20-03

STL RICHLAND

ALPHA

CONTINUING CALIBRATION

Quality Assurance Report. Generated 6-FEB-2007 16:04:43.24

QA Filename : $DISK1:[QUAD10.QA]CHK.QAF;2

-- Multi-Test Full Report --

Description : Quad10A (Hex 1) alpha %Eff
Parameter Units : Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 47.599998 Upper Bound : 50.500000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JAN-2006 00:00 End Date : 1-JUL-2006 00:00
Mean : 49.065498 Std Deviation : 0.463531

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 11:32	CHK		49.1000	| | |
1-JAN-2007 11:57	CHK		No Value	| | |
2-JAN-2007 04:55	CHK		49.1000	| | |
3-JAN-2007 06:18	CHK		48.7000	| | |
3-JAN-2007 06:40	CHK		No Value	| | |
4-JAN-2007 05:38	CHK		49.5000	| | |
5-JAN-2007 05:33	CHK		49.2000	| | |
6-JAN-2007 06:35	CHK		49.3000	| | |
8-JAN-2007 05:06	CHK		48.9000	| | |
9-JAN-2007 04:59	CHK		49.6000	| | |
9-JAN-2007 05:26	CHK		No Value	| | |
10-JAN-2007 05:20	CHK		49.7000	| | |
11-JAN-2007 05:57	CHK		49.3000	| | |
11-JAN-2007 06:20	CHK		No Value	| | |
12-JAN-2007 05:30	CHK		49.2000	| | |
13-JAN-2007 06:09	CHK		49.1000	| | |
13-JAN-2007 06:33	CHK		No Value	| | |
14-JAN-2007 09:57	CHK		49.2000	| | |
14-JAN-2007 10:21	CHK		No Value	| | |
15-JAN-2007 05:03	CHK		49.2000	| | |
16-JAN-2007 06:18	CHK		49.0000	| | |

17-JAN-2007 04:55	CHK	49.9000	| | |
18-JAN-2007 06:08	CHK	49.2000	| | |
18-JAN-2007 06:35	CHK	No Value	| | |
19-JAN-2007 05:52	CHK	48.6000	| | |
19-JAN-2007 06:18	CHK	No Value	| | |
22-JAN-2007 05:09	CHK	49.4000	| | |
22-JAN-2007 05:33	CHK	No Value	| | |
23-JAN-2007 05:04	CHK	49.2000	| | |
24-JAN-2007 06:08	CHK	49.0000	| | |
25-JAN-2007 05:40	CHK	48.6000	| | |
26-JAN-2007 06:11	CHK	48.6000	| | |
26-JAN-2007 06:33	CHK	No Value	| | |
27-JAN-2007 07:37	CHK	49.4000	| | |
29-JAN-2007 05:13	CHK	48.9000	| | |
30-JAN-2007 05:21	CHK	49.4000	| | |
30-JAN-2007 05:44	CHK	No Value	| | |
31-JAN-2007 05:13	CHK	49.0000	| | |

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-FEB-2007 05:05	CHK		48.6000	| | |
1-FEB-2007 05:32	CHK		No Value	| | |
2-FEB-2007 05:09	CHK		49.1000	| | |
3-FEB-2007 10:57	CHK		49.4000	| | |

-- Multi-Test Full Report --

Description : Quad10B (Hex 2) alpha %Eff
Parameter Units : Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 40.400002 Upper Bound : 43.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JAN-2006 00:00 End Date : 1-JUL-2006 00:00
Mean : 41.726315 Std Deviation : 0.416509

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 11:32	CHK		41.8000	| | |

1-JAN-2007 11:57	CHK	No Value	| |	
2-JAN-2007 04:55	CHK	41.7000	| |	
3-JAN-2007 06:18	CHK	41.3000	| |	
3-JAN-2007 06:40	CHK	No Value	| |	
4-JAN-2007 05:38	CHK	41.9000	| |	
5-JAN-2007 05:33	CHK	41.8000	| |	
6-JAN-2007 06:35	CHK	42.3000	| |	
8-JAN-2007 05:06	CHK	40.9000	| |	
9-JAN-2007 04:59	CHK	41.9000	| |	
9-JAN-2007 05:26	CHK	No Value	| |	
10-JAN-2007 05:20	CHK	42.0000	| |	
11-JAN-2007 05:57	CHK	41.2000	| |	
11-JAN-2007 06:20	CHK	No Value	| |	
12-JAN-2007 05:30	CHK	41.9000	| |	
13-JAN-2007 06:09	CHK	39.5000	Be|Ac|	
13-JAN-2007 06:33	CHK	42.0000	| |	
14-JAN-2007 09:57	CHK	39.9000	Be|Ac|	
14-JAN-2007 10:21	CHK	42.6000	|In|	
15-JAN-2007 05:03	CHK	41.3000	| |	
16-JAN-2007 06:18	CHK	41.6000	| |	
17-JAN-2007 04:55	CHK	40.8000	|In|	
18-JAN-2007 06:08	CHK	39.3000	Be|Ac|	
18-JAN-2007 06:35	CHK	42.6000	|In|	
19-JAN-2007 05:52	CHK	39.4000	Be|Ac|	
19-JAN-2007 06:18	CHK	41.4000	| |	
22-JAN-2007 05:09	CHK	41.3000	| |	
22-JAN-2007 05:33	CHK	No Value	| |	
23-JAN-2007 05:04	CHK	41.9000	| |	
24-JAN-2007 06:08	CHK	41.1000	| |	
25-JAN-2007 05:40	CHK	42.0000	| |	
26-JAN-2007 06:11	CHK	41.3000	| |	
26-JAN-2007 06:33	CHK	No Value	| |	
27-JAN-2007 07:37	CHK	42.1000	| |	

Quality Assurance Multi-Test Full Report (continued) Page : 3

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
29-JAN-2007 05:13	CHK		42.0000	| |
30-JAN-2007 05:21	CHK		38.8000	Be|Ac|
30-JAN-2007 05:44	CHK		41.8000	| |
31-JAN-2007 05:13	CHK		41.7000	| |
1-FEB-2007 05:05	CHK		41.4000	| |
1-FEB-2007 05:32	CHK		No Value	| |

2-FEB-2007 05:09	CHK	41.8000	| | |
3-FEB-2007 10:57	CHK	41.3000	| | |

-- Multi-Test Full Report --

Description : Quad10C (Hex 3) alpha %Eff
Parameter Units : Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 44.900002 Upper Bound : 49.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 46.962921 Std Deviation : 0.670843

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 11:32	CHK		49.2000	Ab|Ac| |
1-JAN-2007 11:57	CHK		49.3000	Ab|Ac| |
2-JAN-2007 04:55	CHK		48.1000	| | |
3-JAN-2007 06:18	CHK		49.3000	Ab|Ac| |
3-JAN-2007 06:40	CHK		48.5000	|In| |
4-JAN-2007 05:38	CHK		48.1000	| | |
5-JAN-2007 05:33	CHK		48.6000	|In| |
6-JAN-2007 06:35	CHK		48.7000	|In| |
8-JAN-2007 05:06	CHK		48.3000	| | |
9-JAN-2007 04:59	CHK		48.2000	| | |
9-JAN-2007 05:26	CHK		No Value	| | |
10-JAN-2007 05:20	CHK		48.8000	|In| |
11-JAN-2007 05:57	CHK		48.4000	|In| |
11-JAN-2007 06:20	CHK		No Value	| | |
12-JAN-2007 05:30	CHK		48.6000	|In| |
13-JAN-2007 06:09	CHK		48.6000	|In| |
13-JAN-2007 06:33	CHK		No Value	| | |
14-JAN-2007 09:57	CHK		48.3000	| | |
14-JAN-2007 10:21	CHK		No Value	| | |
15-JAN-2007 05:03	CHK		46.6000	| | |
16-JAN-2007 06:18	CHK		48.4000	|In| |
17-JAN-2007 04:55	CHK		48.1000	| | |
18-JAN-2007 06:08	CHK		46.4000	| | |
18-JAN-2007 06:35	CHK		No Value	| | |

19-JAN-2007 05:52	CHK		48.1000	| | |
19-JAN-2007 06:18	CHK		No Value	| | |
22-JAN-2007 05:09	CHK		48.5000	|In| |
22-JAN-2007 05:33	CHK		No Value	| | |
23-JAN-2007 05:04	CHK		46.3000	| | |
24-JAN-2007 06:08	CHK		48.3000	| | |

Quality Assurance Multi-Test Full Report (continued) Page : 4

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
25-JAN-2007 05:40	CHK		45.2000	|In| |
26-JAN-2007 06:11	CHK		48.8000	|In| |
26-JAN-2007 06:33	CHK		No Value	| | |
27-JAN-2007 07:37	CHK		45.6000	|In| |
29-JAN-2007 05:13	CHK		48.5000	|In| |
30-JAN-2007 05:21	CHK		46.6000	| | |
30-JAN-2007 05:44	CHK		No Value	| | |
31-JAN-2007 05:13	CHK		48.2000	| | |
1-FEB-2007 05:05	CHK		48.5000	|In| |
1-FEB-2007 05:32	CHK		No Value	| | |
2-FEB-2007 05:09	CHK		48.5000	|In| |
3-FEB-2007 10:57	CHK		48.0000	| | |

-- Multi-Test Full Report --

Description : Quad10D (Hex 4) alpha %Eff
Parameter Units : Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 46.299999 Upper Bound : 50.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 48.150002 Std Deviation : 0.600698

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 11:32	CHK		48.1000	| | |
1-JAN-2007 11:57	CHK		No Value	| | |
2-JAN-2007 04:55	CHK		48.0000	| | |
3-JAN-2007 06:18	CHK		48.7000	| | |

3-JAN-2007 06:40	CHK		No Value	| |	
4-JAN-2007 05:38	CHK		48.0000	| |	
5-JAN-2007 05:33	CHK		48.6000	| |	
6-JAN-2007 06:35	CHK		47.8000	| |	
8-JAN-2007 05:06	CHK		47.5000	| |	
9-JAN-2007 04:59	CHK		47.6000	| |	
9-JAN-2007 05:26	CHK		No Value	| |	
10-JAN-2007 05:20	CHK		48.4000	| |	
11-JAN-2007 05:57	CHK		48.4000	| |	
11-JAN-2007 06:20	CHK		No Value	| |	
12-JAN-2007 05:30	CHK		48.4000	| |	
13-JAN-2007 06:09	CHK		48.7000	| |	
13-JAN-2007 06:33	CHK		No Value	| |	
14-JAN-2007 09:57	CHK		47.9000	| |	
14-JAN-2007 10:21	CHK		No Value	| |	
15-JAN-2007 05:03	CHK		48.0000	| |	
16-JAN-2007 06:18	CHK		47.8000	| |	
17-JAN-2007 04:55	CHK		48.5000	| |	
18-JAN-2007 06:08	CHK		47.6000	| |	
18-JAN-2007 06:35	CHK		No Value	| |	
19-JAN-2007 05:52	CHK		47.9000	| |	
19-JAN-2007 06:18	CHK		No Value	| |	

Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-JAN-2007 05:09	CHK		48.4000	| | |
22-JAN-2007 05:33	CHK		No Value	| | |
23-JAN-2007 05:04	CHK		48.0000	| | |
24-JAN-2007 06:08	CHK		47.7000	| | |
25-JAN-2007 05:40	CHK		47.7000	| | |
26-JAN-2007 06:11	CHK		48.0000	| | |
26-JAN-2007 06:33	CHK		No Value	| | |
27-JAN-2007 07:37	CHK		48.4000	| | |
29-JAN-2007 05:13	CHK		47.3000	| | |
30-JAN-2007 05:21	CHK		47.6000	| | |
30-JAN-2007 05:44	CHK		No Value	| | |
31-JAN-2007 05:13	CHK		48.7000	| | |
1-FEB-2007 05:05	CHK		48.2000	| | |
1-FEB-2007 05:32	CHK		No Value	| | |
2-FEB-2007 05:09	CHK		47.9000	| | |
3-FEB-2007 10:57	CHK		48.2000	| | |

-- Multi-Test Full Report --

Description : Quad10E (Hex 5) alpha %Eff
Parameter Units : Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 44.799999 Upper Bound : 48.599998

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 46.425556 Std Deviation : 0.531481

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 11:32	CHK		47.5000	|In| |
1-JAN-2007 11:57	CHK		No Value	| | |
2-JAN-2007 04:55	CHK		47.7000	|In| |
3-JAN-2007 06:18	CHK		48.0000	|In| |
3-JAN-2007 06:40	CHK		No Value	| | |
4-JAN-2007 05:38	CHK		47.7000	|In| |
5-JAN-2007 05:33	CHK		46.6000	| | |
6-JAN-2007 06:35	CHK		46.8000	| | |
8-JAN-2007 05:06	CHK		47.2000	| | |
9-JAN-2007 04:59	CHK		48.1000	|Ac| |
9-JAN-2007 05:26	CHK		47.3000	| | |
10-JAN-2007 05:20	CHK		47.6000	|In| |
11-JAN-2007 05:57	CHK		47.7000	|In| |
11-JAN-2007 06:20	CHK		No Value	| | |
12-JAN-2007 05:30	CHK		47.4000	| | |
13-JAN-2007 06:09	CHK		47.3000	| | |
13-JAN-2007 06:33	CHK		No Value	| | |
14-JAN-2007 09:57	CHK		47.9000	|In| |
14-JAN-2007 10:21	CHK		No Value	| | |
15-JAN-2007 05:03	CHK		47.1000	| | |
16-JAN-2007 06:18	CHK		47.2000	| | |
17-JAN-2007 04:55	CHK		47.3000	| | |

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
18-JAN-2007 06:08	CHK		47.5000	|In| |

18-JAN-2007 06:35	CHK	No Value	| |	|
19-JAN-2007 05:52	CHK	47.5000	|In|	|
19-JAN-2007 06:18	CHK	No Value	| |	|
22-JAN-2007 05:09	CHK	47.7000	|In|	|
22-JAN-2007 05:33	CHK	No Value	| |	|
23-JAN-2007 05:04	CHK	46.6000	| |	|
24-JAN-2007 06:08	CHK	46.9000	| |	|
25-JAN-2007 05:40	CHK	47.4000	| |	|
26-JAN-2007 06:11	CHK	47.1000	| |	|
26-JAN-2007 06:33	CHK	No Value	| |	|
27-JAN-2007 07:37	CHK	47.3000	| |	|
29-JAN-2007 05:13	CHK	47.7000	|In|	|
30-JAN-2007 05:21	CHK	46.8000	| |	|
30-JAN-2007 05:44	CHK	No Value	| |	|
31-JAN-2007 05:13	CHK	47.1000	| |	|
1-FEB-2007 05:05	CHK	47.7000	|In|	|
1-FEB-2007 05:32	CHK	No Value	| |	|
2-FEB-2007 05:09	CHK	47.4000	| |	|
3-FEB-2007 10:57	CHK	47.1000	| |	|

-- Multi-Test Full Report --

Description : Quad10F (Hex 6) alpha %Eff
Parameter Units : Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 46.700001 Upper Bound : 50.099998

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 10-JAN-2006 00:00 End Date : 1-MAR-2006 00:00
Mean : 48.417023 Std Deviation : 0.513860

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 11:32	CHK		48.6000	| | |
1-JAN-2007 11:57	CHK		No Value	| | |
2-JAN-2007 04:55	CHK		48.5000	| | |
3-JAN-2007 06:18	CHK		48.5000	| | |
3-JAN-2007 06:40	CHK		No Value	| | |
4-JAN-2007 05:38	CHK		48.3000	| | |
5-JAN-2007 05:33	CHK		48.1000	| | |

6-JAN-2007 06:35	CHK	48.5000	| |	
8-JAN-2007 05:06	CHK	48.5000	| |	
9-JAN-2007 04:59	CHK	48.1000	| |	
9-JAN-2007 05:26	CHK	No Value	| |	
10-JAN-2007 05:20	CHK	48.6000	| |	
11-JAN-2007 05:57	CHK	46.7000	|Ac|	|
11-JAN-2007 06:20	CHK	48.5000	| |	
12-JAN-2007 05:30	CHK	48.8000	| |	
13-JAN-2007 06:09	CHK	48.6000	| |	
13-JAN-2007 06:33	CHK	No Value	| |	
14-JAN-2007 09:57	CHK	48.7000	| |	

Quality Assurance Multi-Test Full Report (continued) Page : 7

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
14-JAN-2007 10:21	CHK		No Value	| |
15-JAN-2007 05:03	CHK		48.4000	| |
16-JAN-2007 06:18	CHK		48.3000	| |
17-JAN-2007 04:55	CHK		48.5000	| |
18-JAN-2007 06:08	CHK		48.6000	| |
18-JAN-2007 06:35	CHK		No Value	| |
19-JAN-2007 05:52	CHK		49.0000	| |
19-JAN-2007 06:18	CHK		No Value	| |
22-JAN-2007 05:09	CHK		45.4000	Be|Ac| |
22-JAN-2007 05:33	CHK		48.1000	| |
23-JAN-2007 05:04	CHK		48.2000	| |
24-JAN-2007 06:08	CHK		48.4000	| |
25-JAN-2007 05:40	CHK		47.7000	| |
26-JAN-2007 06:11	CHK		45.8000	Be|Ac| |
26-JAN-2007 06:33	CHK		45.4000	Be|Ac| |
27-JAN-2007 07:37	CHK		48.5000	| |
29-JAN-2007 05:13	CHK		47.7000	| |
30-JAN-2007 05:21	CHK		48.5000	| |
30-JAN-2007 05:44	CHK		No Value	| |
31-JAN-2007 05:13	CHK		48.7000	| |
1-FEB-2007 05:05	CHK		45.3000	Be|Ac| |
1-FEB-2007 05:32	CHK		48.6000	| |
2-FEB-2007 05:09	CHK		48.8000	| |
3-FEB-2007 10:57	CHK		48.5000	| |

Quality Assurance Report. Generated 6-FEB-2007 16:04:44.89

QA Filename : $DISK1:[QUAD10.QA]BKG_15.QAF;2

-- Multi-Test Full Report --

Description : Quad10A (Hex 1) alph bkg
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.046053 Std Deviation : 0.013942

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 20:50	BKG		0.0400	| | |
3-JAN-2007 05:54	BKG		0.0400	| | |
4-JAN-2007 05:16	BKG		0.0600	| | |
5-JAN-2007 05:10	BKG		0.0400	| | |
6-JAN-2007 04:58	BKG		0.0500	| | |
6-JAN-2007 20:41	BKG		0.0500	| | |
7-JAN-2007 20:16	BKG		0.0600	| | |
9-JAN-2007 04:05	BKG		0.0500	| | |
10-JAN-2007 04:57	BKG		0.0500	| | |
11-JAN-2007 05:34	BKG		0.0300	| | |
12-JAN-2007 05:06	BKG		0.0400	| | |
12-JAN-2007 21:56	BKG		0.0200	| | |
12-JAN-2007 21:56	BKG		0.0200	| | |
13-JAN-2007 10:06	BKG		0.0700	| | |
13-JAN-2007 21:22	BKG		0.0400	| | |
14-JAN-2007 22:18	BKG		0.0500	| | |
16-JAN-2007 05:55	BKG		0.0400	| | |
17-JAN-2007 04:33	BKG		0.0600	| | |
18-JAN-2007 05:44	BKG		0.0400	| | |
19-JAN-2007 04:34	BKG		0.0700	| | |
20-JAN-2007 04:42	BKG		0.0500	| | |
20-JAN-2007 20:26	BKG		0.0500	| | |
21-JAN-2007 20:59	BKG		0.0400	| | |
23-JAN-2007 04:15	BKG		0.0500	| | |
24-JAN-2007 05:45	BKG		0.0300	| | |
25-JAN-2007 05:17	BKG		0.0400	| | |
26-JAN-2007 05:49	BKG		0.0500	| | |
27-JAN-2007 05:03	BKG		0.0400	| | |

27-JAN-2007 21:10	BKG	0.0400	| | |
28-JAN-2007 21:42	BKG	0.0400	| | |
30-JAN-2007 04:58	BKG	0.0500	| | |
31-JAN-2007 04:27	BKG	0.0500	| | |
1-FEB-2007 04:14	BKG	0.0500	| | |
2-FEB-2007 04:22	BKG	0.0600	| | |
3-FEB-2007 03:19	BKG	0.0500	| | |
3-FEB-2007 23:10	BKG	0.0800	|In| |
4-FEB-2007 21:35	BKG	0.0600	| | |

-- Multi-Test Full Report --

Description : Quad10B (Hex 2) alpha bkg
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.033122 Std Deviation : 0.010930

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 20:50	BKG		0.0300	| | |
3-JAN-2007 05:54	BKG		0.0300	| | |
4-JAN-2007 05:16	BKG		0.0400	| | |
5-JAN-2007 05:10	BKG		0.0200	| | |
6-JAN-2007 04:58	BKG		0.0400	| | |
6-JAN-2007 20:41	BKG		0.0400	| | |
7-JAN-2007 20:16	BKG		0.0300	| | |
9-JAN-2007 04:05	BKG		0.0200	| | |
10-JAN-2007 04:57	BKG		0.0300	| | |
11-JAN-2007 05:34	BKG		0.0300	| | |
12-JAN-2007 05:06	BKG		0.0400	| | |
12-JAN-2007 21:56	BKG		0.0400	| | |
12-JAN-2007 21:56	BKG		0.0400	| | |
13-JAN-2007 10:06	BKG		0.0400	| | |
13-JAN-2007 21:22	BKG		0.0400	| | |
14-JAN-2007 22:18	BKG		0.0300	| | |

16-JAN-2007 05:55	BKG		0.0400	| | |
17-JAN-2007 04:33	BKG		0.0300	| | |
18-JAN-2007 05:44	BKG		0.0300	| | |
19-JAN-2007 04:34	BKG		0.0400	| | |
20-JAN-2007 04:42	BKG		0.0200	| | |
20-JAN-2007 20:26	BKG		0.0200	| | |
21-JAN-2007 20:59	BKG		0.0200	| | |
23-JAN-2007 04:15	BKG		0.0200	| | |
24-JAN-2007 05:45	BKG		0.0200	| | |
25-JAN-2007 05:17	BKG		0.0200	| | |
26-JAN-2007 05:49	BKG		0.0100	|In| |
27-JAN-2007 05:03	BKG		0.0300	| | |
27-JAN-2007 21:10	BKG		0.0200	| | |
28-JAN-2007 21:42	BKG		0.0200	| | |
30-JAN-2007 04:58	BKG		0.0300	| | |
31-JAN-2007 04:27	BKG		0.0300	| | |
1-FEB-2007 04:14	BKG		0.0500	| | |
2-FEB-2007 04:22	BKG		0.0300	| | |
3-FEB-2007 03:19	BKG		0.0100	|In| |
3-FEB-2007 23:10	BKG		0.0400	| | |
4-FEB-2007 21:35	BKG		0.0400	| | |

-- Multi-Test Full Report --

Description : Quad10C (Hex 3) alpha bkg
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.036349 Std Deviation : 0.011573

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 20:50	BKG		0.0400	| | |
3-JAN-2007 05:54	BKG		0.0500	| | |
4-JAN-2007 05:16	BKG		0.0400	| | |
5-JAN-2007 05:10	BKG		0.0400	| | |

Quality Assurance Multi-Test Full Report (continued) Page : 3

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

6-JAN-2007 04:58	BKG	0.0300	| | |
6-JAN-2007 20:41	BKG	0.0200	| | |
7-JAN-2007 20:16	BKG	0.0300	| | |
9-JAN-2007 04:05	BKG	0.0400	| | |
10-JAN-2007 04:57	BKG	0.0600	|In| |
11-JAN-2007 05:34	BKG	0.0300	| | |
12-JAN-2007 05:06	BKG	0.0400	| | |
12-JAN-2007 21:56	BKG	0.0000	|Ac| |
12-JAN-2007 21:56	BKG	0.0000	|Ac| |
13-JAN-2007 10:06	BKG	0.0500	| | |
13-JAN-2007 21:22	BKG	0.0400	| | |
14-JAN-2007 22:18	BKG	0.0400	| | |
16-JAN-2007 05:55	BKG	0.0500	| | |
17-JAN-2007 04:33	BKG	0.0500	| | |
18-JAN-2007 05:44	BKG	0.0400	| | |
19-JAN-2007 04:34	BKG	0.0600	|In| |
20-JAN-2007 04:42	BKG	0.0700	|In| |
20-JAN-2007 20:26	BKG	0.0300	| | |
21-JAN-2007 20:59	BKG	0.0400	| | |
23-JAN-2007 04:15	BKG	0.0500	| | |
24-JAN-2007 05:45	BKG	0.0400	| | |
25-JAN-2007 05:17	BKG	0.0600	|In| |
26-JAN-2007 05:49	BKG	0.0400	| | |
27-JAN-2007 05:03	BKG	0.0500	| | |
27-JAN-2007 21:10	BKG	0.0400	| | |
28-JAN-2007 21:42	BKG	0.0400	| | |
30-JAN-2007 04:58	BKG	0.0300	| | |
31-JAN-2007 04:27	BKG	0.0700	|In| |
1-FEB-2007 04:14	BKG	0.0600	|In| |
2-FEB-2007 04:22	BKG	0.0600	|In| |
3-FEB-2007 03:19	BKG	0.0500	| | |
3-FEB-2007 23:10	BKG	0.0500	| | |
4-FEB-2007 21:35	BKG	0.0500	| | |

-- Multi-Test Full Report --

Description : Quad10D (Hex 4) alpha bkg
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00

Mean : 0.041587 Std Deviation : 0.010848

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 20:50	BKG		0.0400	| | |
3-JAN-2007 05:54	BKG		0.0500	| | |
4-JAN-2007 05:16	BKG		0.0300	| | |
5-JAN-2007 05:10	BKG		0.0400	| | |
6-JAN-2007 04:58	BKG		0.0500	| | |
6-JAN-2007 20:41	BKG		0.0200	| | |
7-JAN-2007 20:16	BKG		0.0300	| | |
9-JAN-2007 04:05	BKG		0.0600	| | |

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
10-JAN-2007 04:57	BKG		0.0400	| | |
11-JAN-2007 05:34	BKG		0.0400	| | |
12-JAN-2007 05:06	BKG		0.0400	| | |
12-JAN-2007 21:56	BKG		0.0400	| | |
12-JAN-2007 21:56	BKG		0.0400	| | |
13-JAN-2007 10:06	BKG		0.0700	|In| |
13-JAN-2007 21:22	BKG		0.0500	| | |
14-JAN-2007 22:18	BKG		0.0400	| | |
16-JAN-2007 05:55	BKG		0.0300	| | |
17-JAN-2007 04:33	BKG		0.0400	| | |
18-JAN-2007 05:44	BKG		0.0300	| | |
19-JAN-2007 04:34	BKG		0.0300	| | |
20-JAN-2007 04:42	BKG		0.0400	| | |
20-JAN-2007 20:26	BKG		0.0400	| | |
21-JAN-2007 20:59	BKG		0.0300	| | |
23-JAN-2007 04:15	BKG		0.0300	| | |
24-JAN-2007 05:45	BKG		0.0300	| | |
25-JAN-2007 05:17	BKG		0.0600	| | |
26-JAN-2007 05:49	BKG		0.0500	| | |
27-JAN-2007 05:03	BKG		0.0300	| | |
27-JAN-2007 21:10	BKG		0.0300	| | |
28-JAN-2007 21:42	BKG		0.0500	| | |
30-JAN-2007 04:58	BKG		0.0500	| | |
31-JAN-2007 04:27	BKG		0.0500	| | |
1-FEB-2007 04:14	BKG		0.0500	| | |
2-FEB-2007 04:22	BKG		0.0700	|In| |
3-FEB-2007 03:19	BKG		0.0200	| | |

3-FEB-2007 23:10	BKG	0.0300	| | |
4-FEB-2007 21:35	BKG	0.0400	| | |

-- Multi-Test Full Report --

Description : Quad10E (Hex 5) alpha bkg
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.028421 Std Deviation : 0.011712

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 20:50	BKG		0.0500	| | |
3-JAN-2007 05:54	BKG		0.0300	| | |
4-JAN-2007 05:16	BKG		0.0500	| | |
5-JAN-2007 05:10	BKG		0.0300	| | |
6-JAN-2007 04:58	BKG		0.0500	| | |
6-JAN-2007 20:41	BKG		0.0500	| | |
7-JAN-2007 20:16	BKG		0.0300	| | |
9-JAN-2007 04:05	BKG		0.0500	| | |
10-JAN-2007 04:57	BKG		0.0500	| | |
11-JAN-2007 05:34	BKG		0.0500	| | |
12-JAN-2007 05:06	BKG		0.0600	|In| |
12-JAN-2007 21:56	BKG		0.0800	|Ac| |

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
12-JAN-2007 21:56	BKG		0.0800	|Ac| |
13-JAN-2007 10:06	BKG		0.0400	| | |
13-JAN-2007 21:22	BKG		0.0500	| | |
14-JAN-2007 22:18	BKG		0.0400	| | |
16-JAN-2007 05:55	BKG		0.0400	| | |
17-JAN-2007 04:33	BKG		0.0500	| | |
18-JAN-2007 05:44	BKG		0.0600	|In| |
19-JAN-2007 04:34	BKG		0.0500	| | |
20-JAN-2007 04:42	BKG		0.0300	| | |
20-JAN-2007 20:26	BKG		0.0400	| | |
21-JAN-2007 20:59	BKG		0.0300	| | |

23-JAN-2007 04:15	BKG	0.0700	|Ac| |
24-JAN-2007 05:45	BKG	0.0600	|In| |
25-JAN-2007 05:17	BKG	0.0400	| | |
26-JAN-2007 05:49	BKG	0.0400	| | |
27-JAN-2007 05:03	BKG	0.0500	| | |
27-JAN-2007 21:10	BKG	0.0400	| | |
28-JAN-2007 21:42	BKG	0.0300	| | |
30-JAN-2007 04:58	BKG	0.0200	| | |
31-JAN-2007 04:27	BKG	0.0600	|In| |
1-FEB-2007 04:14	BKG	0.0300	| | |
2-FEB-2007 04:22	BKG	0.0800	|Ac| |
3-FEB-2007 03:19	BKG	0.0500	| | |
3-FEB-2007 23:10	BKG	0.0500	| | |
4-FEB-2007 21:35	BKG	0.0400	| | |

-- Multi-Test Full Report --

Description : Quad10F (Hex 6) alpha bkg
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.013053 Std Deviation : 0.032288

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 20:50	BKG		0.0500	| | |
3-JAN-2007 05:54	BKG		0.0700	| | |
4-JAN-2007 05:16	BKG		0.0500	| | |
5-JAN-2007 05:10	BKG		0.0300	| | |
6-JAN-2007 04:58	BKG		0.0500	| | |
6-JAN-2007 20:41	BKG		0.0600	| | |
7-JAN-2007 20:16	BKG		0.0600	| | |
9-JAN-2007 04:05	BKG		0.0400	| | |
10-JAN-2007 04:57	BKG		0.0400	| | |
11-JAN-2007 05:34	BKG		0.0400	| | |
12-JAN-2007 05:06	BKG		0.0300	| | |
12-JAN-2007 21:56	BKG		0.1200	|Ac| |
12-JAN-2007 21:56	BKG		0.1200	|Ac| |
13-JAN-2007 10:06	BKG		0.0600	| | |
13-JAN-2007 21:22	BKG		0.0500	| | |

14-JAN-2007 22:18 BKG 0.0400 | | |

Quality Assurance Multi-Test Full Report (continued) Page : 6

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
16-JAN-2007 05:55	BKG		0.0500	| | |
17-JAN-2007 04:33	BKG		0.0400	| | |
18-JAN-2007 05:44	BKG		0.0400	| | |
19-JAN-2007 04:34	BKG		0.0500	| | |
20-JAN-2007 04:42	BKG		0.0300	| | |
20-JAN-2007 20:26	BKG		0.0500	| | |
21-JAN-2007 20:59	BKG		0.0300	| | |
23-JAN-2007 04:15	BKG		0.0400	| | |
24-JAN-2007 05:45	BKG		0.0400	| | |
25-JAN-2007 05:17	BKG		0.0300	| | |
26-JAN-2007 05:49	BKG		0.0400	| | |
27-JAN-2007 05:03	BKG		0.0600	| | |
27-JAN-2007 21:10	BKG		0.0400	| | |
28-JAN-2007 21:42	BKG		0.0300	| | |
30-JAN-2007 04:58	BKG		0.0400	| | |
31-JAN-2007 04:27	BKG		0.0400	| | |
1-FEB-2007 04:14	BKG		0.0400	| | |
2-FEB-2007 04:22	BKG		0.0300	| | |
3-FEB-2007 03:19	BKG		0.0300	| | |
3-FEB-2007 23:10	BKG		0.0300	| | |
4-FEB-2007 21:35	BKG		0.0400	| | |

RADIUM 228

SAMPLE AND QC DATA

SEVERN TRENT **STL**

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

2/2/2007 5:16:19 PM

Lot No., Due Date: J7A090287,J7A100115,J7A100118; 02/06/2007

Client, Site: 536403; AIR MONITORING Yerington Mine

QC Batch No., Method Test: 7029198; RRA228 Ra-228 by GPC

SDG, Matrix: 33442,33443,33444; FILTER

1.0 COC			
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	Yes ✓	No	N/A
2.0 QC Batch			
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	Yes ✓	No	N/A
2.2 Are the QC appropriate for the analysis included in the batch?	Yes ✓	No	N/A
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	Yes ✓	No	N/A
2.4 Does the Worksheets include a Tracer Vial label for each sample?	Yes ✓	No	N/A
3.0 QC & Samples			
3.1 Is the blank results, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.2 Is the LCS result, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.3 Are the MS/MSD results, yields, and MDA within contract limits?	Yes	No	N/A ✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?	Yes	No	N/A ✓
3.5 Are the sample yields and MDAs within contract limits?	Yes ✓	No	N/A
4.0 Raw Data			
4.1 Were results calculated in the correct units?	Yes ✓	No	N/A
4.2 Were analysis volumes entered correctly?	Yes ✓	No	N/A
4.3 Were Yields entered correctly?	Yes ✓	No	N/A
4.4 Were spectra reviewed/meet contractual requirements?	Yes ✓	No	N/A
4.5 Were raw counts reviewed for anomalies?	Yes ✓	No	N/A
5.0 Other			
5.1 Are all nonconformances included and noted?	Yes ✓	No	N/A
5.2 Are all required forms filled out?	Yes ✓	No	N/A
5.3 Was the correct methodology used?	Yes ✓	No	N/A
5.4 Was transcription checked?	Yes ✓	No	N/A
5.5 Were all calculations checked at a minimum frequency?	Yes ✓	No	N/A
5.6 Are worksheet entries complete and correct?	Yes ✓	No	N/A

6.0 Comments on any No response:
See NCM 10-09399.

First Level Review Angela Long **Date** 2/2/07

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 7029198

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4, Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?			✓
C. Other 1. Are all Nonconformances included and noted?	✓		
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: See NCM

Second Level Review: Sheryl A Adam Date: 2-6-07

STL RICHLAND

1/29/2007 2:13:06 PM

Sample Preparation/Analysis

Balance Id:1120373922,1120403183

536403, Brown and Caldwell , Brown & Caldwell

BX Ra-226/228 PrpRC5016, SepRC5005
TF Radium-228 by GPC
01 STANDARD TEST SET

Pipet #:

AnalyDueDate: 02/05/2007

Sep1 DT/Tm Tech: AL 1/30/07 8:41

Batch: 7029198 FILTER pCi/sampl PM, Quote: SA , 63174

SEQ Batch, Test: 7011225, BXTE All Tests: 7011219 9NS1, 7011221 BAS7, 7011225 BXTE, 7011229 BXTF, 7029198 BXTF,

Sep2 DT/Tm Tech: 02/01/07 0900

Prep Tech: WoodT,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 JMK81-2-AD J7A090287-1-SAMP	0.833sa,g	531.15sa,g	150.35g,in	0.2358g 7.57 / 7.5092 = 1.0081	RATA25421R "	29.4 2 x 50	9 1A 1A	0953 1452 0807	1/30/07 2/1/07 2/2/07	
12/05/2006 12:25		AmtRec: FILTER		#Containers: 1			Scr:	Alpha:		Beta:
2 JMLA1-2-AD J7A090287-2-SAMP	0.833sa,g	502.71sa,g	150.45g,in	0.2493g 8.335 / 7.4901 = 1.1128	RATA25422 01/10/07	28.9	6 7B 7B	0953 1452 0807	1/30/07 2/1/07 2/2/07	
12/05/2006 12:10		AmtRec: FILTER		#Containers: 1			Scr:	Alpha:		Beta:
3 JMLA4-2-AD J7A090287-3-SAMP	0.833sa,g	516.54sa,g	150.04g,in	0.242g 7.468 / 7.4901 = .9970	RATA25423 01/10/07	30.3	64 1B 7C	0953 1452 0807	1/30/07 2/1/07 2/2/07	
12/05/2006 12:45		AmtRec: FILTER		#Containers: 1			Scr:	Alpha:		Beta:
4 JMLA7-2-AD J7A090287-4-SAMP	0.833sa,g	519.32sa,g	150.04g,in	0.2407g 7.276 / 7.5092 = .9689	RATA25433 01/10/07	29.2	67 1C 1B	0954 1452 0807	1/30/07 2/1/07 2/2/07	
12/05/2006 12:30		AmtRec: FILTER		#Containers: 1			Scr:	Alpha:		Beta:

STL RICHLAND

1/29/2007 2:13:08 PM

Sample Preparation/Analysis

Balance Id:1120373922,1120373922,1120

536403, Brown and Caldwell , Brown & Caldwell

BX Ra-226/228 PrpRC5016, SepRC5005
TF Radium-228 by GPC
01 STANDARD TEST SET

Pipet #:

AnalyDueDate: 02/05/2007

Sep1 DT/Tm Tech:

Batch: 7029198 FILTER pCi/sampl PM, Quote: SA , 63174

SEQ Batch, Test: 7011225, BXTE

Sep2 DT/Tm Tech:

Prep Tech: WoodT,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
5 JMLA8-2-AD J7A090287-5-SAMP	0.833sa,g	500.78sa,g	150.17g,in	0.2498g 7.863 = 7.4371 1.0579 ✓	RATA25424 01/10/07	1" 28.6 3x5	6L 1D 1C	0954 1452 0601	1/30/07 01/1/07 01/2/07	
12/05/2006 12:50		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
6 JMLT2-2-AD J7A100115-1-SAMP	0.833sa,g	524.49sa,g	150.14g,in	0.2385g 6.962 = 7.4996 .9283 ✓	RATA25425 01/10/07	30.0	6L 3L 1D	0954 1452 0601	1/30/07 01/1/07 01/2/07	
12/11/2006 11:40		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
7 JMLT6-2-AD J7A100115-2-SAMP	0.833sa,g	532.31sa,g	150.39g,in	0.2353g 7.97 = 7.4711 1.0668 ✓	RATA25426 01/10/07	29.0	9" 3S 3L	1007 1452 0601	1/30/07 01/1/07 01/2/07	
12/11/2006 12:00		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
8 JMLT7-2-AD J7A100115-3-SAMP	0.833sa,g	527.80sa,g	150.19g,in	0.237g 6.959 = 7.4901 .9291 ✓	RATA25427 01/10/07	29.2	6L 3L 3S	1007 1452 0601	1/30/07 01/1/07 01/2/07	
12/11/2006 12:15		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:

1/29/2007 2:13:08 PM

Sample Preparation/Analysis

Balance Id:1120373922,1120373922,1120

536403, Brown and Caldwell Caldwell , Brown &

BX Ra-226/228 PrpRC5016, SepRC5005
TF Radium-228 by GPC
01 STANDARD TEST SET

Pipet #:

AnalyDueDate: 02/05/2007

Sep1 DT/Tm Tech:

Batch: 7029198 **FILTER** **pCi/sampl** **PM, Quote: SA , 63174**

SEQ Batch, Test: 7011225, BXTE

Sep2 DT/Tm Tech:

Prep Tech: WoodT,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
9 JMLT8-2-AD J7A100115-4-SAMP	0.833sa,g	503.04sa,g	150.15g,in	0.2486g 7.163 7.4234 .9649	RATA25428 01/10/07	1" 30.9 3x50	64 3D 3C	1:37 1452 [illegible]	1/30/07 2/1/07 2/2/07	
12/11/2006 11:45		AmtRec: FILTER		#Containers: 1			Scr:	Alpha:		Beta:
10 JMLVA-2-AD J7A100115-5-SAMP	0.833g	511.47g	150.13g,in	0.2445g 7.819 7.4615 1.0479	RATA25429 01/10/07	27.4	67 4A 4A	1037 1452 [illegible]	1/30/07 2/1/07 2/2/07	
12/11/2006 12:20		AmtRec: FILTER		#Containers: 1			Scr:	Alpha:		Beta:
11 JMLVW-2-AD J7A100118-1-SAMP	0.833g	502.79g	150.13g,in	0.2487g 7.554 7.4901 1.0085	RATA25430 01/10/07	30.1	68 4B 4B	1037 1452 [illegible]	1/30/07 2/1/07 2/2/07	
12/13/2006 12:10		AmtRec: FILTER		#Containers: 1			Scr:	Alpha:		Beta:
12 JMLV3-2-AD J7A100118-2-SAMP	0.833sa,g	507.51sa,g	150.08g,in	0.2463g 7.492 7.4329 1.0080	RATA25431 01/10/07	28.9	66 4C 4C	1038 1452 [illegible]	1/30/07 2/1/07 2/2/07	
12/13/2006 12:43		AmtRec: FILTER		#Containers: 1			Scr:	Alpha:		Beta:

STL RICHLAND

STL RICHLAND

1/29/2007 2:13:09 PM

Sample Preparation/Analysis

Balance Id:1120373922,1120373922,1120

536403, Brown and Caldwell , Brown & Caldwell

BX Ra-226/228 PrpRC5016, SepRC5005
TF Radium-228 by GPC
01 STANDARD TEST SET

Pipet #:

AnalyDueDate: 02/05/2007

Sep1 DT/Tm Tech:

Batch: 7029198 FILTER pCi/sampl
SEQ Batch, Test: 7011225, BXTE

PM, Quote: SA , 63174

Sep2 DT/Tm Tech:

Prep Tech: WoodT,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
13 JMLV5-2-AD J7A100118-3-SAMP	0.833sa,g	510.86sa,g	150.11g,in	0.2448g 7.98 = 7.4996 1.0641 ✓	RATA25432 01/10/07	1" 30.0 3x50	9" 40 40	1152 1452 0607	1/30/07 1/31/07 2/1/07	
12/13/2006 13:15		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
[redacted] J7A100118-4-SAMP	0.833sa,g	504.92sa,g	150.33g,in	0.248g 7.82 = 7.4329 1.0521 ✓	RATA25434 01/10/07	1½" 30.2 3x5065	9" 5A 5A	1152 0915 1452 0607	1/30/07 1/31/07 K 2/1/07 2/2/07	
12/13/2006 13:18		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
15 JMLV9-2-AD J7A100118-5-SAMP	0.833sa,g	511.81sa,g	150.39g,in	0.2448g 7.953 = 7.4996 1.0605 ✓	RATA25435 01/10/07	31.2	6A 5B 5B	1107 1452 0607	1/30/07 2/1/07 2/2/07	
12/13/2006 13:21		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
16 JMN9F-2-AA-B J7A110000-229-BLK			150.23g,in	150.23g 8.306 = 7.4615 1.1132 ✓	RATA25436 01/10/07	30.6	6A 5C 5C	1107 1452 0607	1/30/07 2/1/07 2/2/07	
12/05/2006 12:25		AmtRec:	#Containers: 1				Scr:	Alpha:		Beta:

1/29/2007 2:13:10 PM

Sample Preparation/Analysis

BX Ra-226/228 PrpRC5016, SepRC5005
TF Radium-228 by GPC
01 STANDARD TEST SET

Balance Id:1120373922,1120373922,1120

Pipet #: _____

AnalyDueDate: 02/05/2007

Sep1 DT/Tm Tech:

Batch: 7029198 pCi/sampl
SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: ,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
17 JMN9F-2-AC-C			150.01g,in	150.01g	RASC4328					
J7A110000-229-LCS				7.439 ✓	01/11/07	1½" 29.93x50Cx		1107	1/30/07	
				7.4988			SD	1452	2/1/07	
				.9920 ✓			XD	0807	5/2/07	

12/05/2006 12:25 AmtRec: #Containers: 1 Scr: Alpha: Beta:

Comments:

All Clients for Batch:
536403, Brown and Caldwell Brown & Caldwell , SA , 63174

JMK812AD-SAMP Constituent List:

Ba-133	RDL:	pCi/sam	LCL:70	UCL:130	RPD:20	RA-228	RDL:3.10E+00	pCi/sam	LCL:	UCL:	RPD:
RA-228DA	RDL:3.10E+00	pCi/sam	LCL:	UCL:	RPD:						

JMN9F2AA-BLK:

Ba-133	RDL:	pCi/sam	LCL:70	UCL:130	RPD:20	RA-228	RDL:1	pCi/sam	LCL:	UCL:	RPD:
RA-228DA	RDL:1	pCi/sam	LCL:	UCL:	RPD:						

JMN9F2AC-LCS:

Ba-133	RDL:	pCi/sam	LCL:70	UCL:130	RPD:20	Ra-226	RDL:	pCi/sam	LCL:70	UCL:130	RPD:20
RA-228	RDL:1	pCi/sam	LCL:70	UCL:130	RPD:20	RA-228DA	RDL:1	pCi/sam	LCL:70	UCL:130	RPD:20

JMK812AD-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

JMN9F2AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

JMN9F2AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

Approved By _____ Date: _____

Clouseau
Nonconformance Memo

SEVERN TRENT SERVICES

NCM #: **10-09399**
NCM Initiated By: angela long
Date Opened: 02/02/2007
Date Closed:

Classification: **Anomaly**
Status: **GLREVIEW**
Production Area: Environmental - Prep
Tests: Ra-228 by GPC
Lot #'s (Sample #'s): J7A090287 (1,2,3,4,5), J7A100115 (1,2,3,4,5), J7A100118 (1,2,3,4,5), J7A110000 (229),
QC Batches: 7011229, 7029198

Nonconformance: Other (describe in detail)
Subcategory: Other (explanation required)

Problem Description / Root Cause

Name	Date	Description
angela long	02/02/2007	The original batch had a low LCS at 72%, so we re-ran the samples and the results were good. The batch will be accepted.

Corrective Action

Name	Date	Corrective Action
angela long	02/02/2007	A re-run was performed and the results are good, so the batch will be accepted.

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note	Response	Response Note

Quality Assurance Verification

Verified By	Due Date	Status	Notes
		This section not yet completed by QA.	

Approval History

Date Approved	Approved By	Position

2/5/2007 5:53:10 AM

Rpt DB Transfer log (Batch Results)

SDG or Batch / Isotope	Rpt Db Id / Method	RTst	Qc	LotSample / Analysis Date	Client Id / Result	Matrix / Cnt Uncert	Received Date / Tot uncert	MDA	Sample Date / Units	Expected	Yield	Volumes	
33442	**9JMK8120**			**J7A0902871**	P-0812	FILTER	1/8/2007 10:00:00		12/5/2006 12:25:00 PM				
RA-228	BXTF	1		2/2/2007 6:05:51 AM	**1.1531E+00**	5.952E-01	5.952E-01	2.588E+00	PCI/SA		0.862	1.0E+0	2.358E-1
33442	**9JMLA120**			**J7A0902872**	P-0813	FILTER	1/8/2007 10:00:00		12/5/2006 12:10:00 PM				
RA-228	BXTF	1		2/2/2007 6:05:51 AM	**4.4305E-01**	3.903E-01	4.778E-01	2.19E+00	PCI/SA		0.935	1.0E+0	2.493E-1
33442	**9JMLA420**			**J7A0902873**	P-0814	FILTER	1/8/2007 10:00:00		12/5/2006 12:45:00 PM				
RA-228	BXTF	1		2/2/2007 6:05:51 AM	**8.5941E-01**	5.806E-01	5.806E-01	2.572E+00	PCI/SA		0.878	1.0E+0	2.42E-1
33442	**9JMLA720**			**J7A0902874**	P-0815	FILTER	1/8/2007 10:00:00		12/5/2006 12:30:00 PM				
RA-228	BXTF	1		2/2/2007 6:06:01 AM	**3.2525E-01**	4.459E-01	5.411E-01	2.541E+00	PCI/SA		0.822	1.0E+0	2.407E-1
33442	**9JMLA820**			**J7A0902875**	000580	FILTER	1/8/2007 10:00:00		12/5/2006 12:50:00 PM				
RA-228	BXTF	1		2/2/2007 6:06:01 AM	**9.0151E-01**	5.005E-01	5.221E-01	2.304E+00	PCI/SA		0.88	1.0E+0	2.498E-1
33443	**9JMLT220**			**J7A1001151**	P-0816	FILTER	1/8/2007 10:00:00		12/11/2006 11:40:00 AM				
RA-228	BXTF	1		2/2/2007 6:06:01 AM	**5.8208E-01**	3.816E-01	4.278E-01	1.937E+00	PCI/SA		0.81	1.0E+0	2.385E-1
33443	**9JMLT620**			**J7A1001152**	P-0817	FILTER	1/8/2007 10:00:00		12/11/2006 12:00:00 PM				
RA-228	BXTF	1		2/2/2007 6:06:10 AM	**2.5662E-02**	1.11E-01	3.464E-01	1.741E+00	PCI/SA		0.899	1.0E+0	2.353E-1
33443	**9JMLT720**			**J7A1001153**	P-0818	FILTER	1/8/2007 10:00:00		12/11/2006 12:15:00 PM				
RA-228	BXTF	1		2/2/2007 6:06:10 AM	**1.7502E+00**	4.993E-01	5.292E-01	2.007E+00	PCI/SA		0.789	1.0E+0	2.37E-1
33443	**9JMLT820**			**J7A1001154**	P-0819	FILTER	1/8/2007 10:00:00		12/11/2006 11:45:00 AM				
RA-228	BXTF	1		2/2/2007 6:06:10 AM	**2.8937E-01**	2.893E-01	3.398E-01	1.614E+00	PCI/SA		0.867	1.0E+0	2.486E-1
33444	**9JMLV320**			**J7A1001182**	P-0821	FILTER	1/8/2007 10:00:00		12/13/2006 12:43:00 PM				
RA-228	BXTF	1		2/2/2007 6:06:22 AM	**8.8132E-01**	4.113E-01	4.164E-01	1.781E+00	PCI/SA		0.847	1.0E+0	2.463E-1
33444	**9JMLV520**			**J7A1001183**	P-0822	FILTER	1/8/2007 10:00:00		12/13/2006 1:15:00 PM				
RA-228	BXTF	1		2/2/2007 6:06:22 AM	**4.4957E-01**	3.657E-01	3.715E-01	1.714E+00	PCI/SA		0.928	1.0E+0	2.448E-1
33444	**9JMLV820**			**J7A1001184**	P-0824	FILTER	1/8/2007 10:00:00		12/13/2006 1:18:00 PM				
RA-228	BXTF	1		2/2/2007 6:06:34 AM	**3.4175E-01**	3.712E-01	4.271E-01	1.983E+00	PCI/SA		0.924	1.0E+0	2.48E-1
33444	**9JMLV920**			**J7A1001185**	P-0582	FILTER	1/8/2007 10:00:00		12/13/2006 1:21:00 PM				
RA-228	BXTF	1		2/2/2007 6:06:34 AM	**2.628E-01**	3.301E-01	4.423E-01	2.059E+00	PCI/SA		0.962	1.0E+0	2.448E-1
33443	**9JMLVA20**			**J7A1001155**	000581	FILTER	1/8/2007 10:00:00		12/11/2006 12:20:00 PM				
RA-228	BXTF	1		2/2/2007 6:06:22 AM	**7.9041E-01**	4.043E-01	4.108E-01	1.789E+00	PCI/SA		0.835	1.0E+0	2.445E-1
33444	**9JMLVW20**			**J7A1001181**	P-0820	FILTER	1/8/2007 10:00:00		12/13/2006 12:10:00 PM				
RA-228	BXTF	1		2/2/2007 6:06:22 AM	**2.9198E-01**	2.929E-01	3.325E-01	1.594E+00	PCI/SA		0.882	1.0E+0	2.487E-1
33442	**JMN9F2AB**			**J7A110000229**	INTRA-LAB BLANK	FILTER	1/8/2007 10:00:00		12/5/2006 12:25:00 PM				
RA-228	BXTF	1	B	2/2/2007 6:06:34 AM	**1.0189E-01**	9.189E-02	1.08E-01	4.912E-01	PCI/SA		0.99	1.0E+0	1.0E+0
33442	**JMN9F2CS**			**J7A110000229**	INTRA-LAB CHECK	FILTER	1/8/2007 10:00:00		12/5/2006 12:25:00 PM				
RA-228	BXTF	1	S	2/2/2007 6:06:34 AM	**5.49E+00**	2.684E-01	4.127E-01	5.422E-01	PCI/SA	5.1483E+00	0.862	1.0E+0	1.0E+0

7029198, **Samples Inserted | Updated | NotUpdated => 0 | 17 | 0,
**Results Inserted | ReTestInserted | Updated | NotInserted => 0 | 0 | 17 | 0.
**Diff RptDb | Qtims => .

2/5/2007 5:53:12 AM

ICOC Fraction Transfer/Status Report

ByDate: 2/5/2006, 2/10/2007, Batch: '7029198', User: *ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting			Comments
7029198							
AC			CalcC	WoodT	1/29/2007 10:43:25		
SC				longa	IsBatched	1/29/2007 10:30:11 AM	ICOC_RADCALC v4.8.26
SC				WoodT	InPrep	1/29/2007 10:43:25 AM	RICH-RC-5016 Revision 5
SC				WoodT	Prep1C	1/29/2007 11:21:47 AM	RICH-RC-5016 REVISION 5
SC				HarrisonJ	InPrep	1/29/2007 12:36:07 PM	RICH-RC-5005 Revision 5
SC				LongA	Sep1C	1/30/2007 8:52:09 AM	RICH-RC-5005 REVISION 5
SC				BlackCL	InCnt1	1/30/2007 9:18:18 AM	RICH-RD-0007 REVISION 5
SC				BlackCL	Cnt1C	1/30/2007 11:11:59 AM	RICH-RD-0007 REVISION 5
SC				HarrisonJ	Sep2C	2/1/2007 9:18:48 AM	RICH-RC-5005 REVISION 4
SC				BlackCL	InCnt2	2/1/2007 12:19:48 PM	RICH-RD-0003 REVISION 4
SC				BlackCL	CalcC	2/2/2007 6:37:32 AM	RICH-RD-0003 REVISION 4
AC				WoodT	1/29/2007 11:21:47		
AC				HarrisonJ	1/29/2007 12:36:07		
AC				LongA	1/30/2007 8:52:09		
AC				BlackCL	1/30/2007 9:18:18		
AC				BlackCL	1/30/2007 11:11:59		
AC				HarrisonJ	2/1/2007 9:18:48 AM		
AC				BlackCL	2/1/2007 12:19:48 PM		
AC				BlackCL	2/2/2007 6:37:32 AM		

AC: Accepting Entry; SC: Status Change

Batch Nbr: 7029198

Alpha Beta, Ra-228 by GPC , Results

2/2/2007 7:27:31 AM

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYld
Ra-228 by GPC				Ra-226/Ra-228 Deem With Out Blk Subt.							CRDL			
Calc	TF	FILTER	JMK812AD	RA-228	1.02E+00	(9.19E-01)	U4	PCI/SA	R	1.84E+00	4.03E+00		86%	
Calc	TF	FILTER	JMK812AD	RA-228	7.02E-01	(9.85E-01)	U4	PCI/SA	R	2.04E+00	4.47E+00		86%	
Calc	TF	FILTER	JMK812AD	RA-228	1.74E+00	(1.17E+00)	U4	PCI/SA	R	2.26E+00	4.96E+00		86%	
Calc	TF	FILTER	JMK812AD	RA-228	1.15E+00	(5.95E-01)		PCI/SA	A	1.18E+00	2.59E+00		86%	
Calc	TF	FILTER	JMK812AD	RA-228	-2.50E+00	(5.55E+00)	U4	PCI/SA	R	1.26E+01	2.75E+01		86%	
Calc	TF	FILTER	JMLA12AD	RA-228	1.58E+00	(8.38E-01)		PCI/SA	R	1.55E+00	3.41E+00		93%	
Calc	TF	FILTER	JMLA12AD	RA-228	1.00E+00	(8.67E-01)	U4	PCI/SA	R	1.72E+00	3.78E+00		93%	
Calc	TF	FILTER	JMLA12AD	RA-228	-1.25E+00	(7.75E-01)	U4	PCI/SA	R	1.91E+00	4.19E+00		93%	
Calc	TF	FILTER	JMLA12AD	RA-228	4.43E-01	(4.78E-01)	U4	PCI/SA	A	9.97E-01	2.19E+00		93%	
Calc	TF	FILTER	JMLA12AD	RA-228	3.11E+00	(4.91E+00)	U4	PCI/SA	R	1.02E+01	2.25E+01		93%	
Calc	TF	FILTER	JMLA42AD	RA-228	-2.57E-01	(8.19E-01)	U4	PCI/SA	R	1.84E+00	4.03E+00		88%	
Calc	TF	FILTER	JMLA42AD	RA-228	1.27E+00	(1.02E+00)	U4	PCI/SA	R	2.02E+00	4.43E+00		88%	
Calc	TF	FILTER	JMLA42AD	RA-228	1.57E+00	(1.15E+00)	U4	PCI/SA	R	2.24E+00	4.91E+00		88%	
Calc	TF	FILTER	JMLA42AD	RA-228	8.59E-01	(5.81E-01)	U4	PCI/SA	A	1.18E+00	2.57E+00		88%	
Calc	TF	FILTER	JMLA42AD	RA-228	7.56E+00	(6.35E+00)	U4	PCI/SA	R	1.26E+01	2.76E+01		88%	
Calc	TF	FILTER	JMLA72AD	RA-228	1.53E+00	(9.56E-01)	U4	PCI/SA	R	1.80E+00	3.98E+00		82%	
Calc	TF	FILTER	JMLA72AD	RA-228	-1.94E-02	(9.00E-01)	U4	PCI/SA	R	1.98E+00	4.37E+00		82%	
Calc	TF	FILTER	JMLA72AD	RA-228	-5.37E-01	(9.55E-01)	U4	PCI/SA	R	2.19E+00	4.85E+00		82%	
Calc	TF	FILTER	JMLA72AD	RA-228	3.25E-01	(5.41E-01)	U4	PCI/SA	A	1.15E+00	2.54E+00		82%	
Calc	TF	FILTER	JMLA72AD	RA-228	3.45E+00	(5.92E+00)	U4	PCI/SA	R	1.24E+01	2.72E+01		82%	
Calc	TF	FILTER	JMLA82AD	RA-228	1.63E+00	(8.87E-01)		PCI/SA	R	1.64E+00	3.61E+00		88%	
Calc	TF	FILTER	JMLA82AD	RA-228	2.91E-01	(8.44E-01)	U4	PCI/SA	R	1.80E+00	3.97E+00		88%	
Calc	TF	FILTER	JMLA82AD	RA-228	7.79E-01	(9.76E-01)	U4	PCI/SA	R	2.00E+00	4.40E+00		88%	
Calc	TF	FILTER	JMLA82AD	RA-228	9.02E-01	(5.22E-01)		PCI/SA	A	1.05E+00	2.30E+00		88%	
Calc	TF	FILTER	JMLA82AD	RA-228	-5.95E+00	(4.71E+00)	U4	PCI/SA	R	1.14E+01	2.50E+01		88%	
Calc	TF	FILTER	JMLT22AD	RA-228	1.06E+00	(7.31E-01)	U4	PCI/SA	R	1.29E+00	3.01E+00		81%	
Calc	TF	FILTER	JMLT22AD	RA-228	1.53E+00	(8.58E-01)		PCI/SA	R	1.43E+00	3.34E+00		81%	
Calc	TF	FILTER	JMLT22AD	RA-228	-8.41E-01	(6.13E-01)	U4	PCI/SA	R	1.59E+00	3.71E+00		81%	
Calc	TF	FILTER	JMLT22AD	RA-228	5.82E-01	(4.28E-01)	U4	PCI/SA	A	8.31E-01	1.94E+00		81%	
Calc	TF	FILTER	JMLT22AD	RA-228	1.89E+01	(7.20E+00)		PCI/SA	R	1.21E+01	2.67E+01		81%	
Calc	TF	FILTER	JMLT62AD	RA-228	5.85E-01	(6.10E-01)	U4	PCI/SA	R	1.17E+00	2.71E+00		90%	
Calc	TF	FILTER	JMLT62AD	RA-228	4.94E-01	(6.56E-01)	U4	PCI/SA	R	1.29E+00	3.01E+00		90%	
Calc	TF	FILTER	JMLT62AD	RA-228	-1.00E+00	(5.27E-01)	U4	PCI/SA	R	1.43E+00	3.33E+00		90%	
Calc	TF	FILTER	JMLT62AD	RA-228	2.57E-02	(3.46E-01)	U4	PCI/SA	A	7.49E-01	1.74E+00		90%	
Calc	TF	FILTER	JMLT62AD	RA-228	5.73E+00	(4.28E+00)	U4	PCI/SA	R	7.64E+00	1.79E+01		90%	
Calc	TF	FILTER	JMLT72AD	RA-228	2.38E+00	(9.32E-01)		PCI/SA	R	1.34E+00	3.12E+00		79%	
Calc	TF	FILTER	JMLT72AD	RA-228	1.55E+00	(8.87E-01)		PCI/SA	R	1.49E+00	3.46E+00		79%	
Calc	TF	FILTER	JMLT72AD	RA-228	1.32E+00	(9.30E-01)	U4	PCI/SA	R	1.65E+00	3.84E+00		79%	

() - (1s Uncertainities)
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MLcC- Method Decision Level in Conc Units
MDC - Minimum Detectable Concentration
*Std - Lc, MDC using StdDev for Set of Blanks

Q - Qualifier, U is Less Than Lc = 1.645*TPU
All Results Displayed to Three Digits Reguardless of Significants
Date/Time - mm/dd/yy hh mm, 24hr Time

RecCnt:39
RADCALC v4.8.26
STL Richland

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYld
Calc	TF	FILTER	JMLT72AD	RA-228	1.75E+00	(5.29E-01)		PCI/SA	A	8.62E-01	2.01E+00		79%	
Calc	TF	FILTER	JMLT72AD	RA-228	-8.89E-01	(4.11E+00)	U4	PCI/SA	R	9.24E+00	2.14E+01		79%	
Calc	TF	FILTER	JMLT82AD	RA-228	1.30E+00	(6.69E-01)		PCI/SA	R	1.07E+00	2.51E+00		87%	
Calc	TF	FILTER	JMLT82AD	RA-228	-3.66E-01	(4.91E-01)	U4	PCI/SA	R	1.19E+00	2.79E+00		87%	
Calc	TF	FILTER	JMLT82AD	RA-228	-7.07E-02	(5.92E-01)	U4	PCI/SA	R	1.32E+00	3.09E+00		87%	
Calc	TF	FILTER	JMLT82AD	RA-228	2.89E-01	(3.40E-01)	U4	PCI/SA	A	6.89E-01	1.61E+00		87%	
Calc	TF	FILTER	JMLT82AD	RA-228	4.87E+00	(4.35E+00)	U4	PCI/SA	R	8.16E+00	1.89E+01		87%	
Calc	TF	FILTER	JMLVA2AD	RA-228	8.57E-01	(6.55E-01)	U4	PCI/SA	R	1.20E+00	2.78E+00		83%	
Calc	TF	FILTER	JMLVA2AD	RA-228	6.34E-01	(6.88E-01)	U4	PCI/SA	R	1.33E+00	3.09E+00		83%	
Calc	TF	FILTER	JMLVA2AD	RA-228	8.80E-01	(7.85E-01)	U4	PCI/SA	R	1.48E+00	3.43E+00		83%	
Calc	TF	FILTER	JMLVA2AD	RA-228	7.90E-01	(4.11E-01)		PCI/SA	A	7.71E-01	1.79E+00		83%	
Calc	TF	FILTER	JMLVA2AD	RA-228	-4.83E-01	(4.23E+00)	U4	PCI/SA	R	9.39E+00	2.14E+01		83%	
Calc	TF	FILTER	JMLVW2AD	RA-228	6.63E-01	(5.71E-01)	U4	PCI/SA	R	1.06E+00	2.48E+00		88%	
Calc	TF	FILTER	JMLVW2AD	RA-228	7.36E-01	(6.34E-01)	U4	PCI/SA	R	1.17E+00	2.75E+00		88%	
Calc	TF	FILTER	JMLVW2AD	RA-228	-5.24E-01	(5.16E-01)	U4	PCI/SA	R	1.30E+00	3.05E+00		88%	
Calc	TF	FILTER	JMLVW2AD	RA-228	2.92E-01	(3.33E-01)	U4	PCI/SA	A	6.79E-01	1.59E+00		88%	
Calc	TF	FILTER	JMLVW2AD	RA-228	1.29E+01	(5.27E+00)		PCI/SA	R	8.28E+00	1.91E+01		88%	
Calc	TF	FILTER	JMLV32AD	RA-228	1.07E+00	(6.77E-01)	U4	PCI/SA	R	1.20E+00	2.77E+00		85%	
Calc	TF	FILTER	JMLV32AD	RA-228	2.53E-01	(6.37E-01)	U4	PCI/SA	R	1.33E+00	3.07E+00		85%	
Calc	TF	FILTER	JMLV32AD	RA-228	1.32E+00	(8.34E-01)	U4	PCI/SA	R	1.47E+00	3.41E+00		85%	
Calc	TF	FILTER	JMLV32AD	RA-228	8.81E-01	(4.16E-01)		PCI/SA	A	7.69E-01	1.78E+00		85%	
Calc	TF	FILTER	JMLV32AD	RA-228	9.97E+00	(5.01E+00)		PCI/SA	R	8.41E+00	1.94E+01		85%	
Calc	TF	FILTER	JMLV52AD	RA-228	5.87E-01	(5.98E-01)	U4	PCI/SA	R	1.15E+00	2.67E+00		93%	
Calc	TF	FILTER	JMLV52AD	RA-228	2.05E-01	(6.09E-01)	U4	PCI/SA	R	1.28E+00	2.96E+00		93%	
Calc	TF	FILTER	JMLV52AD	RA-228	5.57E-01	(7.17E-01)	U4	PCI/SA	R	1.42E+00	3.28E+00		93%	
Calc	TF	FILTER	JMLV52AD	RA-228	4.50E-01	(3.72E-01)	U4	PCI/SA	A	7.40E-01	1.71E+00		93%	
Calc	TF	FILTER	JMLV52AD	RA-228	6.91E+00	(4.48E+00)	U4	PCI/SA	R	7.99E+00	1.84E+01		93%	
Calc	TF	FILTER	JMLV82AD	RA-228	1.17E+00	(7.37E-01)	U4	PCI/SA	R	1.40E+00	3.08E+00		92%	
Calc	TF	FILTER	JMLV82AD	RA-228	1.18E-01	(7.18E-01)	U4	PCI/SA	R	1.55E+00	3.42E+00		92%	
Calc	TF	FILTER	JMLV82AD	RA-228	-2.62E-01	(7.64E-01)	U4	PCI/SA	R	1.72E+00	3.80E+00		92%	
Calc	TF	FILTER	JMLV82AD	RA-228	3.42E-01	(4.27E-01)	U4	PCI/SA	A	8.99E-01	1.98E+00		92%	
Calc	TF	FILTER	JMLV82AD	RA-228	5.28E+00	(4.91E+00)	U4	PCI/SA	R	9.73E+00	2.14E+01		92%	
Calc	TF	FILTER	JMLV92AD	RA-228	1.62E+00	(7.98E-01)		PCI/SA	R	1.46E+00	3.20E+00		96%	
Calc	TF	FILTER	JMLV92AD	RA-228	8.57E-02	(7.47E-01)	U4	PCI/SA	R	1.62E+00	3.55E+00		96%	
Calc	TF	FILTER	JMLV92AD	RA-228	-9.20E-01	(7.52E-01)	U4	PCI/SA	R	1.80E+00	3.94E+00		96%	
Calc	TF	FILTER	JMLV92AD	RA-228	2.63E-01	(4.42E-01)	U4	PCI/SA	A	9.40E-01	2.06E+00		96%	
Calc	TF	FILTER	JMLV92AD	RA-228	-2.25E+00	(4.53E+00)	U4	PCI/SA	R	1.02E+01	2.22E+01		96%	
Calc	TF	FILTER	JMN9F2AA	RA-228	4.98E-01	(2.00E-01)		PCI/SA	R	3.49E-01	7.64E-01	B	99%	
Calc	TF	FILTER	JMN9F2AA	RA-228	-2.34E-01	(1.59E-01)	U4	PCI/SA	R	3.87E-01	8.48E-01	B	99%	

() - (1s Uncertainities)
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*Std - Lc, MDC using StdDev for Set of Blanks

Q - Qualifier, U is Less Than Lc = 1.645*TPU
All Results Displayed to Three Digits Reguardless of Significants
Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:78
RADCALC v4.8.26
STL Richland

Batch Nbr: 7029198

Alpha Beta, Ra-228 by GPC , Results

2/2/2007 7:27:32 AM

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYld
Calc	TF	FILTER	**JMN9F2AA**	RA-228	**4.14E-02**	**(1.99E-01)**	**U4**	PCI/SA	R	4.30E-01	9.41E-01	**B**	99%	
Calc	TF	FILTER	**JMN9F2AA**	RA-228	**1.02E-01**	**(1.08E-01)**	**U4**	PCI/SA	A	2.24E-01	4.91E-01	**B**	99%	
Calc	TF	FILTER	**JMN9F2AA**	RA-228	**1.84E+00**	**(1.15E+00)**	**U4**	PCI/SA	R	2.15E+00	4.73E+00	**B**	99%	
Calc	TF	FILTER	**JMN9F2AC**	RA-228	**5.31E+00**	**(6.78E-01)**		PCI/SA	R	3.82E-01	8.43E-01	**S**	86%	103%
Calc	TF	FILTER	**JMN9F2AC**	RA-228	**5.79E+00**	**(7.43E-01)**		PCI/SA	R	4.24E-01	9.36E-01	**S**	86%	112%
Calc	TF	FILTER	**JMN9F2AC**	RA-228	**5.37E+00**	**(7.22E-01)**		PCI/SA	R	4.70E-01	1.04E+00	**S**	86%	104%
Calc	TF	FILTER	**JMN9F2AC**	RA-228	**5.49E+00**	**(4.13E-01)**		PCI/SA	A	2.46E-01	5.42E-01	**S**	86%	107%
Calc	TF	FILTER	**JMN9F2AC**	RA-228	**8.82E+00**	**(1.94E+00)**		PCI/SA	R	2.44E+00	5.41E+00	**S**	86%	171%

Angela Long
2/2/07

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Q - Qualifier, U is Less Than Lc = 1.645*TPU
All Results Displayed to Three Digits Reguardless of Significants
Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:85
RADCALC v4.8.26
STL Richland

STL RICHLAND

Batch Nbr: 7029198 Alpha Beta, Ra-228 by GPC , Calculated Results 2/2/2007 7:27:32 AM

2nd analysis - LCS ou'. Detailed Report

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
1	Calc	TF	FILTER	*STLE	Ra228WoBS	JMK812AD	PCI/SA		12/05/06 12:25	02/02/07 06:05	01/30/07 08:41	RATA25421R	1	1.00 SA	
536403,P-0812					,J7A090287-1 v4.8.26		FILTER			29.4	02/01/07 09:00	RATA25421R	101%	0.235793 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/01/07 13:17	RA-228	45	297	GPC7A	1	N	N	5.4150E-01	1.0000E+00	N	86%	N		1.5544E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.622E-02)	(0.000E+00)		7%			(0.000E+00)	4.241005		
1	02/01/07 14:12	RA-228	42	297	GPC7A	1	N	N	5.4150E-01	1.0000E+00	N	86%	N		1.7250E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.622E-02)	(0.000E+00)		7%			(0.000E+00)	4.241005		
2	02/01/07 15:07	RA-228	48	297	GPC7A	1	N	N	5.4150E-01	1.0000E+00	N	86%	N		1.9144E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.622E-02)	(0.000E+00)		7%			(0.000E+00)	4.241005		
3	02/02/07 06:05	RA-228	36	311	GPC7A	1	N	N	5.4150E-01	1.0000E+00	N	86%	N		1.0406E+01	4.5045E-01	1.0186E+00	
			50	400			N		(1.622E-02)	(0.000E+00)		7%			(0.000E+00)	4.241005		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	02/02/07	RA-228	R	**1.021122**	U4	1.57500E-01	0.524756	0.524756	1.00 SA	86%		4.025176		
				(0.919265)		(1.4091E-01)	(0.471625)	(0.471625)	(0.014142)			1.837981		
	02/02/07	RA-228	R	**0.701512**	U4	9.75000E-02	0.360508	0.360508	1.00 SA	86%		4.467026		
				(0.985249)		(1.3659E-01)	(0.505975)	(0.505975)	(0.014142)			2.03974		
	02/02/07	RA-228	R	**1.736695**	U4	2.17500E-01	0.892491	0.892491	1.00 SA	86%		4.957379		
				(1.171596)		(1.4511E-01)	(0.600297)	(0.600297)	(0.014142)			2.263645		
	02/02/07	RA-228	A	**1.15311**		1.57500E-01	0.592585	0.592585	1.00 SA	86%		2.588373		
				(0.595203)		(8.1356E-02)	(0.305286)	(0.305286)	(0.008165)			1.181906		
	02/02/07	RA-228	R	**-2.495568**	U4	-5.75000E-02	-1.282477	-1.282477	1.00 SA	86%		27.518659		
				(5.55413)		(1.2784E-01)	(2.8535)	(2.8535)	(0.014142)			12.590634		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
2	Calc	TF	FILTER	*STLE	Ra228WoBS	JMLA12AD	PCI/SA		12/05/06 12:10	02/02/07 06:05	01/30/07 08:41	RATA25422	1	1.00 SA	
536403,P-0813					,J7A090287-2 v4.8.26		FILTER			28.9	02/01/07 09:00	RATA25422 Alq	111%	0.249299 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/01/07 13:17	RA-228	49	280	GPC7B	1	N	N	5.4307E-01	1.0000E+00	N	93%	N		1.5544E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.561E-02)	(0.000E+00)		7%			(0.000E+00)	4.011256		
1	02/01/07 14:12	RA-228	43	280	GPC7B	1	N	N	5.4307E-01	1.0000E+00	N	93%	N		1.7250E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.561E-02)	(0.000E+00)		7%			(0.000E+00)	4.011256		
2	02/01/07 15:07	RA-228	26	280	GPC7B	1	N	N	5.4307E-01	1.0000E+00	N	93%	N		1.9144E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.561E-02)	(0.000E+00)		7%			(0.000E+00)	4.011256		

() - (1s Uncertainities), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU

IDC - Instrument Detection Level in Conc Units, MLcC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration

Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significants, Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:2 RADCALC v4.8.26 STL Richland

Batch Nbr: 7029198

Alpha Beta, Ra-228 by GPC , Calculated Results

2/2/2007 7:27:33 AM

3	02/02/07 06:05	RA-228	38	271		GPC7B	1	N	N	5.4307E-01	1.0000E+00	N	93%	N		1.0406E+01	4.5045E-01	1.0186E+00
			50	400				N		(1.561E-02)	(0.000E+00)		7%			(0.000E+00)	4.011256	

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	02/02/07	RA-228	R	**1.577788**		2.80000E-01	0.857267	0.857267	1.00 SA	93%		3.405743		
				(0.838231)		(1.4612E-01)	(0.453256)	(0.453256)	(0.014142)			1.551085		
	02/02/07	RA-228	R	**1.000563**	U4	1.60000E-01	0.54364	0.54364	1.00 SA	93%		3.779597		
				(0.866605)		(1.3766E-01)	(0.470008)	(0.470008)	(0.014142)			1.72135		
	02/02/07	RA-228	R	**-1.249196**	U4	-1.80000E-01	-0.678731	-0.678731	1.00 SA	93%		4.19449		
				(0.775031)		(1.1023E-01)	(0.419621)	(0.419621)	(0.014142)			1.910306		
	02/02/07	RA-228	A	**0.443052**	U4	8.66667E-02	0.240725	0.240725	1.00 SA	93%		2.190049		
				(0.477762)		(7.6340E-02)	(0.258721)	(0.258721)	(0.008165)			0.997419		
	02/02/07	RA-228	R	**3.112069**	U4	8.25000E-02	1.690894	1.690894	1.00 SA	93%		22.462752		
				(4.912753)		(1.2998E-01)	(2.667821)	(2.667821)	(0.014142)			10.215174		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
3	Calc	TF	FILTER	*STLE	Ra228WoBS	**JMLA42AD**	**PCI/SA**		12/05/06 12:45	02/02/07 06:05	01/30/07 08:41	RATA25423	1	1.00 SA	
[illegible],P-0814					J7A090287-3 v4.8.26		FILTER			30.3	02/01/07 09:00	RATA25423 Alq	100%	0.241963 SA	✓

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/01/07 13:17	RA-228	36	304	GPC1B	1	N	N	5.2336E-01	1.0000E+00	N	88%	N		1.5550E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.538E-02)	(0.000E+00)		7%			(0.000E+00)	4.132871		
1	02/01/07 14:07	RA-228	47	304	GPC1B	1	N	N	5.2336E-01	1.0000E+00	N	88%	N		1.7094E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.538E-02)	(0.000E+00)		7%			(0.000E+00)	4.132871		
2	02/01/07 15:02	RA-228	48	304	GPC1B	1	N	N	5.2336E-01	1.0000E+00	N	88%	N		1.8970E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.538E-02)	(0.000E+00)		7%			(0.000E+00)	4.132871		
3	02/02/07 06:05	RA-228	47	307	GPC7C	1	N	N	5.1299E-01	1.0000E+00	N	88%	N		1.0406E+01	4.5045E-01	1.0186E+00	
			50	400			N		(1.642E-02)	(0.000E+00)		7%			(0.000E+00)	4.132871		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	02/02/07	RA-228	R	**-0.256623**	U4	-4.00000E-02	-0.13533	-0.13533	1.00 SA	88%		4.025709		
				(0.819486)		(1.2767E-01)	(0.432099)	(0.432099)	(0.014142)			1.840085		
	02/02/07	RA-228	R	**1.269508**	U4	1.80000E-01	0.669475	0.669475	1.00 SA	88%		4.425579		
				(1.022606)		(1.4387E-01)	(0.538148)	(0.538148)	(0.014142)			2.022859		
	02/02/07	RA-228	R	**1.565355**	U4	2.00000E-01	0.82549	0.82549	1.00 SA	88%		4.911227		
				(1.147591)		(1.4526E-01)	(0.60366)	(0.60366)	(0.014142)			2.244841		
	02/02/07	RA-228	A	**0.859413**	U4	1.13333E-01	0.453212	0.453212	1.00 SA	88%		2.571617		
				(0.580636)		(8.0346E-02)	(0.305636)	(0.305636)	(0.008165)			1.175444		
	02/02/07	RA-228	R	**7.555641**	U4	1.72500E-01	3.984468	3.984468	1.00 SA	88%		27.608194		
				(6.350366)		(1.4394E-01)	(3.34246)	(3.34246)	(0.014142)			12.624591		

() - (1s Uncertainities), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU

RecCnt:4

RADCALC v4.8.26

IDC - Instrument Detection Level in Conc Units, MLcC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration

Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significants, Date/Time - mm/dd/yy hh:mm, 24hr Time

STL Richland

Batch Nbr: 7029198 — # Alpha Beta, Ra-228 by GPC , Calculated Results — 2/2/2007 7:27:33 AM

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
4	Calc	TF	FILTER	*STLE	Ra228WoBS	**JMLA72AD**	**PCi/SA**		12/05/06 12:30	02/02/07 06:06	01/30/07 08:41	RATA25433	1	1.00 SA	
536403,P-0815					,J7A090287-4 v4.8.26		FILTER			29.2	02/01/07 09:00	RATA25433 Alq	97%	0.240667 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/01/07 13:17	RA-228	41	241	GPC1C	1	N	N	5.1164E-01	1.0000E+00	N	82%	N		1.5550E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.846E-02)	(0.000E+00)		7%			(0.000E+00)	4.155114		
1	02/01/07 14:07	RA-228	30	241	GPC1C	1	N	N	5.1164E-01	1.0000E+00	N	82%	N		1.7094E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.846E-02)	(0.000E+00)		7%			(0.000E+00)	4.155114		
2	02/01/07 15:02	RA-228	27	241	GPC1C	1	N	N	5.1164E-01	1.0000E+00	N	82%	N		1.8970E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.846E-02)	(0.000E+00)		7%			(0.000E+00)	4.155114		
3	02/02/07 06:06	RA-228	37	266	GPC1B	1	N	N	5.2380E-01	1.0000E+00	N	82%	N		1.0409E+01	4.5045E-01	1.0186E+00	
			50	400			N		(1.539E-02)	(0.000E+00)		7%			(0.000E+00)	4.155114		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	02/02/07	RA-228	R	**1.532286**	U4	2.17500E-01	0.803723	0.803723	1.00 SA	82%		3.9779		
				(0.955586)		(1.3381E-01)	(0.499486)	(0.499486)	(0.014142)			1.799099		
	02/02/07	RA-228	R	**-0.019362**	U4	-2.50000E-03	-0.010156	-0.010156	1.00 SA	82%		4.37302		
				(0.900071)		(1.1622E-01)	(0.47211)	(0.47211)	(0.014142)			1.977801		
	02/02/07	RA-228	R	**-0.537166**	U4	-6.25000E-02	-0.281757	-0.281757	1.00 SA	82%		4.852901		
				(0.955008)		(1.1093E-01)	(0.500712)	(0.500712)	(0.014142)			2.194839		
	02/02/07	RA-228	A	**0.325253**	U4	5.08333E-02	0.170603	0.170603	1.00 SA	82%		2.541077		
				(0.541121)		(6.9697E-02)	(0.283448)	(0.283448)	(0.008165)			1.149262		
	02/02/07	RA-228	R	**3.454868**	U4	7.50000E-02	1.812166	1.812166	1.00 SA	82%		27.199678		
				(5.920469)		(1.2831E-01)	(3.104008)	(3.104008)	(0.014142)			12.358818		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
5	Calc	TF	FILTER	*STLE	Ra228WoBS	**JMLA82AD**	**PCi/SA**		12/05/06 12:50	02/02/07 06:06	01/30/07 08:41	RATA25424	1	1.00 SA	
536403,000580					,J7A090287-5 v4.8.26		FILTER			28.6	02/01/07 09:00	RATA25424 Alq	106%	0.249794 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/01/07 13:17	RA-228	45	255	GPC1D	1	N	N	5.2143E-01	1.0000E+00	N	88%	N		1.5550E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.783E-02)	(0.000E+00)		7%			(0.000E+00)	4.003306		
1	02/01/07 14:07	RA-228	34	255	GPC1D	1	N	N	5.2143E-01	1.0000E+00	N	88%	N		1.7094E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.783E-02)	(0.000E+00)		7%			(0.000E+00)	4.003306		
2	02/01/07 15:02	RA-228	37	255	GPC1D	1	N	N	5.2143E-01	1.0000E+00	N	88%	N		1.8970E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.783E-02)	(0.000E+00)		7%			(0.000E+00)	4.003306		
3	02/02/07 06:06	RA-228	26	264	GPC1C	1	N	N	5.1132E-01	1.0000E+00	N	88%	N		1.0409E+01	4.5045E-01	1.0186E+00	
			50	400			N		(1.845E-02)	(0.000E+00)		7%			(0.000E+00)	4.003306		

Batch Nbr: 7029198 — Alpha Beta, Ra-228 by GPC , Calculated Results — 2/2/2007 7:27:33 AM

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/lLcC	BlkLcC/MDC	StdDvMdC/LcC
	02/02/07	RA-228	R	1.634797		2.62500E-01	0.890013	0.890013	1.00 SA	88%		3.607508		
				(0.887354)		(1.3998E-01)	(0.480873)	(0.480873)	(0.014142)			1.635952		
	02/02/07	RA-228	R	0.290972	U4	4.25000E-02	0.15841	0.15841	1.00 SA	88%		3.965838		
				(0.844422)		(1.2326E-01)	(0.459645)	(0.459645)	(0.014142)			1.798449		
	02/02/07	RA-228	R	0.778764	U4	1.02500E-01	0.423973	0.423973	1.00 SA	88%		4.401036		
				(0.975991)		(1.2804E-01)	(0.53089)	(0.53089)	(0.014142)			1.995805		
	02/02/07	RA-228	A	0.901511		1.35833E-01	0.490799	0.490799	1.00 SA	88%		2.304471		
				(0.522069)		(7.5411E-02)	(0.283697)	(0.283697)	(0.008165)			1.045044		
	02/02/07	RA-228	R	-5.951925	U4	-1.40000E-01	-3.240336	-3.240336	1.00 SA	88%		25.016974		
				(4.706154)		(1.0977E-01)	(2.556577)	(2.556577)	(0.014142)			11.363112		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
6	Calc	TF	FILTER	*STLE	Ra228WoBS	JMLT22AD	PCI/SA		12/11/06 11:40	02/02/07 06:06	01/30/07 08:41	RATA25425	1	1.00 SA	
536403,P-0816					,J7A100115-1 v4.8.26		FILTER			30.0	02/01/07 09:00	RATA25425 Alq	93%	0.238454 SA	✓

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/01/07 13:12	RA-228	19	97	GPC3A	1	N	N	4.6168E-01	1.0000E+00	N	81%	N		1.5410E+00	4.5045E-01	1.0166E+00	
			50	394			Y		(4.105E-02)	(0.000E+00)		6%			(0.000E+00)	4.193685		
1	02/01/07 14:07	RA-228	21	97	GPC3A	1	N	N	4.6168E-01	1.0000E+00	N	81%	N		1.7102E+00	4.5045E-01	1.0166E+00	
			50	394			Y		(4.105E-02)	(0.000E+00)		6%			(0.000E+00)	4.193685		
2	02/01/07 15:02	RA-228	8	97	GPC3A	1	N	N	4.6168E-01	1.0000E+00	N	81%	N		1.8979E+00	4.5045E-01	1.0166E+00	
			50	394			Y		(4.105E-02)	(0.000E+00)		6%			(0.000E+00)	4.193685		
3	02/02/07 06:06	RA-228	50	240	GPC1D	1	N	N	5.2186E-01	1.0000E+00	N	81%	N		1.0409E+01	4.5045E-01	1.0166E+00	
			50	400			N		(1.784E-02)	(0.000E+00)		6%			(0.000E+00)	4.193685		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/lLcC	BlkLcC/MDC	StdDvMdC/LcC
	02/02/07	RA-228	R	1.059491	U4	1.33807E-01	0.551704	0.551704	1.00 SA	81%		3.012748		
				(0.731265)		(9.0691E-02)	(0.379708)	(0.379708)	(0.014142)			1.292563		
	02/02/07	RA-228	R	1.527281		1.73807E-01	0.795294	0.795294	1.00 SA	81%		3.343462		
				(0.858209)		(9.4999E-02)	(0.444976)	(0.444976)	(0.014142)			1.434449		
	02/02/07	RA-228	R	-0.840537	U4	-8.61929E-02	-0.437689	-0.437689	1.00 SA	81%		3.71048		
				(0.612984)		(6.1845E-02)	(0.318385)	(0.318385)	(0.014142)			1.591911		
	02/02/07	RA-228	A	0.582078	U4	7.38071E-02	0.303103	0.303103	1.00 SA	81%		1.937335		
				(0.427788)		(4.8390E-02)	(0.221999)	(0.221999)	(0.008165)			0.831177		
	02/02/07	RA-228	R	18.925731		4.00000E-01	9.855107	9.855107	1.00 SA	81%		26.665503		
				(7.19785)		(1.4663E-01)	(3.712956)	(3.712956)	(0.014142)			12.057692		

() - (1s Uncertainities), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU

RecCnt:7

RADCALC v4.8.26

IDC - Instrument Detection Level in Conc Units, MLcC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration

Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significants, Date/Time - mm/dd/yy hh:mm, 24hr Time

STL Richland

Batch Nbr: 7029198

Alpha Beta, Ra-228 by GPC , Calculated Results

2/2/2007 7:27:34 AM

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
16	Calc	TF	FILTER	*STLE	Ra228WoBS	JMN9F2AA	PCI/SA	B	12/05/06 12:25	02/02/07 06:06	01/30/07 08:41	RATA25436	1	1.00 SA	
0	INTRA-LAB BLANK				J7A110000-229		FILTER			30.6	02/01/07 09:00	RATA25436 Alq	111%	1.00 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/01/07 13:17	RA-228	58	301	GPC5C	1.5	N	N	5.8995E-01	1.0000E+00	N	99%	N		1.5571E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.180E-02)	(0.000E+00)		8%			(0.000E+00)	1.00		
1	02/01/07 14:13	RA-228	29	301	GPC5C	1.5	N	N	5.8995E-01	1.0000E+00	N	99%	N		1.7280E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.180E-02)	(0.000E+00)		8%			(0.000E+00)	1.00		
2	02/01/07 15:08	RA-228	39	301	GPC5C	1.5	N	N	5.8995E-01	1.0000E+00	N	99%	N		1.9177E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.180E-02)	(0.000E+00)		8%			(0.000E+00)	1.00		
3	02/02/07 06:06	RA-228	43	212	GPC5C	1.5	N	N	5.8995E-01	1.0000E+00	N	99%	N		1.0420E+01	4.5045E-01	1.0186E+00	
			50	334			N		(1.180E-02)	(0.000E+00)		8%			(0.000E+00)	1.00		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	02/02/07	RA-228	R	**0.49836**		4.07500E-01	1.086157	1.086157	1.00 SA	99%		0.763934		
				(0.199743)		(1.5837E-01)	(0.431522)	(0.431522)	(0.017321)			0.349032		
	02/02/07	RA-228	R	**-0.234113**	U4	-1.72500E-01	-0.510239	-0.510239	1.00 SA	99%		0.847766		
				(0.159241)		(1.1611E-01)	(0.346007)	(0.346007)	(0.017321)			0.387334		
	02/02/07	RA-228	R	**0.041419**	U4	2.75000E-02	0.090272	0.090272	1.00 SA	99%		0.940827		
				(0.19918)		(1.3222E-01)	(0.434079)	(0.434079)	(0.017321)			0.429852		
	02/02/07	RA-228	A	**0.101889**	U4	8.75000E-02	0.222063	0.222063	1.00 SA	99%		0.491234		
				(0.107975)		(7.8912E-02)	(0.234368)	(0.234368)	(0.01)			0.224439		
	02/02/07	RA-228	R	**1.843568**	U4	2.25269E-01	4.017983	4.017983	1.00 SA	99%		4.731215		
				(1.145373)		(1.3820E-01)	(2.487225)	(2.487225)	(0.017321)			2.145099		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
17	Calc	TF	FILTER	*STLE	Ra228WoBS	JMN9F2AC	PCI/SA	S	12/05/06 12:25	02/02/07 06:06	01/30/07 08:41	RASC4328	1	1.00 SA	
0	INTRA-LAB CHECK				J7A110000-229		FILTER			29.9	02/01/07 09:00	RASC4328 Alq	99%	1.00 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/01/07 13:17	RA-228	211	248	GPC5D	1.5	N	N	5.6215E-01	1.0000E+00	N	86%	N		1.5571E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.259E-02)	(0.000E+00)		7%			(0.000E+00)	1.00		
1	02/01/07 14:13	RA-228	208	248	GPC5D	1.5	N	N	5.6215E-01	1.0000E+00	N	86%	N		1.7280E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.259E-02)	(0.000E+00)		7%			(0.000E+00)	1.00		
2	02/01/07 15:08	RA-228	179	248	GPC5D	1.5	N	N	5.6215E-01	1.0000E+00	N	86%	N		1.9177E+00	4.5045E-01	1.0186E+00	
			50	400			Y		(1.259E-02)	(0.000E+00)		7%			(0.000E+00)	1.00		
3	02/02/07 06:06	RA-228	73	189	GPC5D	1.5	N	N	5.6215E-01	1.0000E+00	N	86%	N		1.0420E+01	4.5045E-01	1.0186E+00	
			50	334			N		(1.259E-02)	(0.000E+00)		7%			(0.000E+00)	1.00		

() - (1s Uncertainities), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU

RecCnt:17

RADCALC v4.8.26

IDC - Instrument Detection Level in Conc Units, MLcC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration

Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significants, Date/Time - mm/dd/yy hh:mm, 24hr Time

STL Richland

Batch Nbr: 7029198

Alpha Beta, Ra-228 by GPC , Calculated Results

2/2/2007 7:27:34 AM

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	02/02/07	RA-228	R	**5.306322**		3.60000E+00	11.564917	11.564917	1.00 SA	86%	103%	0.843119		
				(0.678157)		(2.9317E-01)	(1.345376)	(1.345376)	(0.017321)			0.381841		
	02/02/07	RA-228	R	**5.790476**		3.54000E+00	12.620113	12.620113	1.00 SA	86%	112%	0.93564		
				(0.742993)		(2.9112E-01)	(1.475216)	(1.475216)	(0.017321)			0.423743		
	02/02/07	RA-228	R	**5.373242**		2.96000E+00	11.710767	11.710767	1.00 SA	86%	104%	1.038346		
				(0.721901)		(2.7046E-01)	(1.446185)	(1.446185)	(0.017321)			0.470258		
	02/02/07	RA-228	A	**5.490013**		3.36667E+00	11.965266	11.965266	1.00 SA	86%	107%	0.542152		
				(0.412725)		(1.6460E-01)	(0.82177)	(0.82177)	(0.01)			0.245536		
	02/02/07	RA-228	R	**8.819285**		8.94132E-01	19.221282	19.221282	1.00 SA	86%	171%	5.413902		
				(1.939132)		(1.7577E-01)	(4.102049)	(4.102049)	(0.017321)			2.441099		

() - (1s Uncertainities), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU

RecCnt:17

RADCALC v4.8.26

STL Richland

IDC - Instrument Detection Level in Conc Units, MLcC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration

Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significants, Date/Time - mm/dd/yy hh:mm, 24hr Time

Rerun

SEVERN TRENT STL

*** RE-ANALYSIS REQUEST ***

DUE DATE 2/5/07

CUSTOMER Brown & Caldwell

ANALYSIS Ra 228

MATRIX Filter

LOT NUMBER J7A090287, J7A100115, J7A100118

SAMPLE DELIVERY GROUP N/A

OLD BATCH NUMBER 7011229

NEW BATCH NUMBER 7029198

	LAB SAMPLE ID	REASON FOR REQUEST & ANALYSIS COMMENTS
1)	All	Low LCS
2)		
3)		
4)		
5)		
6)		
7)		
8)		
9)		
10)		
11)		
12)		
13)		
14)		
15)		
16)		
17)		
18)		
19)		
20)		
	LAB QC ID	Assigned with new batch.

RC-048, 10/03, Rev 7

STL RICHLAND

1/16/2007 7:10:55 AM

Sample Preparation/Analysis

Balance Id:1120373922,1120373922,1120

536403, Brown and Caldwell , Brown & Caldwell

BX Ra-226/228 PrpRC5016, SepRC5005
TF Radium-228 by GPC
01 STANDARD TEST SET

Pipet #:

AnalyDueDate: 02/05/2007

Sep1 DT/Tm Tech: AL 1/17/07 9:47

Batch: 7011229 FILTER pCi/sampl PM, Quote: SA , 63174

SEQ Batch, Test: 7011225, BXTE

Sep2 DT/Tm Tech: JA 1/25/07 0925

Prep Tech: WoodT,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 JMK81-1-AD J7A090287-1-SAMP	0.833sa,g	531.15sa,g	150.19g,in	0.2355g 1.0090	RATA25303 01/03/07	29.0 150	JK JC	1516 0549	1/25/07 1/26/07	
12/05/2006 12:25		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
2 JMLA1-1-AD J7A090287-2-SAMP	0.833sa,g	502.71sa,g	150.39g,in	0.2492g 1.0130	RATA25304 01/03/07	27.3	JB JB	1516 0549	1/25/07 1/26/07	
12/05/2006 12:10		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
3 JMLA4-1-AD J7A090287-3-SAMP	0.833sa,g	516.54sa,g	150.15g,in	0.2421g 1.0564	RATA25305 01/03/07	29.2	JC JB	1516 0549	1/25/07 1/26/07	
12/05/2006 12:45		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
4 JMLA7-1-AD J7A090287-4-SAMP	0.833sa,g	519.32sa,g	150.24g,in	0.241g 1.0593	RATA25306 01/03/07	29.6	JB JC	1516 0549	1/25/07 1/26/07	
12/05/2006 12:30		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:

01/16/07 JA

STL RICHLAND

1/16/2007 7:10:57 AM

Sample Preparation/Analysis

536403, Brown and Caldwell , Brown & Caldwell

BX Ra-226/228 PrpRC5016, SepRC5005
TF Radium-228 by GPC
01 STANDARD TEST SET

AnalyDueDate: 02/05/2007

Batch: 7011229 FILTER pCi/sampl
SEQ Batch, Test: 7011225, BXTE

PM, Quote: SA , 63174

Balance Id:1120373922,1120373922,1120
Pipet #:
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech: WoodT,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
5 JMLA8-1-AD J7A090287-5-SAMP	0.833sa,g	500.78sa,g	150.69g,in	0.2507g .9104	RATA25307 01/03/07	150 in 29.5	K ID	1516 0549	1/25/07 1/26/07	
12/05/2006 12:50		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
6 JMLT2-1-AD J7A100115-1-SAMP	0.833sa,g	524.49sa,g	150.01g,in	0.2382g .9678	RATA25308 01/03/07	29.9	ID DA	1516 0549	1/25/07 1/26/07	
12/11/2006 11:40		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
7 JMLT6-1-AD J7A100115-2-SAMP	0.833sa,g	532.31sa,g	150.08g,in	0.2349g .9473	RATA25309 01/03/07	29.7	DA DC	1516 0549	1/25/07 1/26/07	
12/11/2006 12:00		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
8 JMLT7-1-AD J7A100115-3-SAMP	0.833sa,g	527.80sa,g	150.17g,in	0.237g 1.0209	RATA25310 01/03/07	30.2	DB DD	1516 0549	1/25/07 1/26/07	
12/11/2006 12:15		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:

604

STL RICHLAND

1/16/2007 7:10:57 AM

Sample Preparation/Analysis

Balance Id:1120373922,1120373922,1120

536403, Brown and Caldwell , Brown & Caldwell

BX Ra-226/228 PrpRC5016, SepRC5005
TF Radium-228 by GPC
01 STANDARD TEST SET

Pipet #:

AnalyDueDate: 02/05/2007

Sep1 DT/Tm Tech:

Batch: 7011229 FILTER pCi/sampl PM, Quote: SA , 63174

SEQ Batch, Test: 7011225, BXTE

Sep2 DT/Tm Tech:

Prep Tech: WoodT,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments
9 JMLT8-1-AD J7A100115-4-SAMP	0.833sa,g	503.04sa,g	150.10g,in	0.2486g .8426	RATA25311 01/03/07	150 lin 30.9	2C 3A	1516 0549	1/25/07 1/26/07	
12/11/2006 11:45		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
10 JMLVA-1-AD J7A100115-5-SAMP	0.833g	511.47g	150.26g,in	0.2447g 1.1149	RATA25312 01/03/07	28.7	2D 3B	1516 0549	1/25/07 1/26/07	
12/11/2006 12:20		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
11 JMLVW-1-AD J7A100118-1-SAMP	0.833g	502.79g	150.23g,in	0.2489g 1.0640	RATA25313 01/03/07	29.1	3A 3C	1516 0549	1/25/07 1/26/07	
12/13/2006 12:10		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
12 JMLV3-1-AD J7A100118-2-SAMP	0.833sa,g	507.51sa,g	150.25g,in	0.2466g 1.0081	RATA25314 01/03/07	29.3	3B 4A	1516 0549	1/25/07 1/26/07	
12/13/2006 12:43		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:

STL RICHLAND

1/16/2007 7:10:57 AM

Sample Preparation/Analysis

Balance Id:1120373922,1120373922,1120

536403, Brown and Caldwell , Brown & Caldwell

BX Ra-226/228 PrpRC5016, SepRC5005
TF Radium-228 by GPC
01 STANDARD TEST SET

Pipet #: _____

AnalyDueDate: 02/05/2007

Sep1 DT/Tm Tech:

Batch: 7011229 FILTER pCi/sampl PM, Quote: SA , 63174

SEQ Batch, Test: 7011225, BXTE

Sep2 DT/Tm Tech:

Prep Tech: WoodT,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
13 JMLV5-1-AD J7A100118-3-SAMP	0.833sa,g	510.86sa,g	150.11g,in	0.2448g .9395	RATA25315 01/03/07	150 29.6	3C 4B	1516 0549	1/25/07 1/26/07	
12/13/2006 13:15		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
14 JMLV8-1-AD J7A100118-4-SAMP	0.833sa,g	504.92sa,g	150.22g,in	0.2478g .9011	RATA25316 01/03/07	30.0	3D 4C	1516 0549	1/25/07 1/26/07	
12/13/2006 13:18		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
15 JMLV9-1-AD J7A100118-5-SAMP	0.833sa,g	511.81sa,g	150.27g,in	0.2446g .9916	RATA25317 01/03/07	30.4	4A 4D	1516 0549	1/25/07 1/26/07	
12/13/2006 13:21		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
16 JMN9F-1-AA-B J7A110000-229-BLK			152.17g,in	152.17g .9276	RATA25318 01/03/07	29.6	4B 7A	1516 0644	1/25/07 1/26/07	
12/05/2006 12:25		AmtRec:	#Containers: 1				Scr:	Alpha:		Beta:

STL RICHLAND

1/16/2007 7:10:59 AM

Sample Preparation/Analysis

BX Ra-226/228 PrpRC5016, SepRC5005
TF Radium-228 by GPC
01 STANDARD TEST SET

Balance Id:1120373922,1120373922,1120

Pipet #: _____

AnalyDueDate: 02/05/2007

Sep1 DT/Tm Tech:

Batch: 7011229 pCi/sampl
SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: ,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
17 JMN9F-1-AC-C J7A110000-229-LCS			150.10g,in	150.10g 1.0435	RASC4320 11/22/06	150 in 30.8	4C 7A	15/6 days	1/05/07 1/26/07	

12/05/2006 12:25 AmtRec: #Containers: 1 Scr: Alpha: Beta:

Comments:

All Clients for Batch:
536403, Brown and Caldwell Brown & Caldwell , SA , 63174

JMK811AD-SAMP Constituent List:

Ba-133	RDL:	pCi/sam	LCL:70	UCL:130	RPD:20	RA-228	RDL:3.10E+00	pCi/sam	LCL:	UCL:	RPD:
RA-228DA	RDL:3.10E+00	pCi/sam	LCL:	UCL:	RPD:						

JMN9F1AA-BLK:

Ba-133	RDL:	pCi/sam	LCL:70	UCL:130	RPD:20	RA-228	RDL:3.10E+00	pCi/sam	LCL:	UCL:	RPD:
RA-228DA	RDL:3.10E+00	pCi/sam	LCL:	UCL:	RPD:						

JMN9F1AC-LCS:

Ba-133	RDL:	pCi/sam	LCL:70	UCL:130	RPD:20	Ra-226	RDL:	pCi/sam	LCL:70	UCL:130	RPD:20
RA-228	RDL:1	pCi/sam	LCL:70	UCL:130	RPD:20	RA-228DA	RDL:1	pCi/sam	LCL:70	UCL:130	RPD:20

JMK811AD-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JMN9F1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JMN9F1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

Approved By _____ Date: _____

607

Batch Nbr: 7011229 | Alpha Beta, Ra-228 by GPC , Results | 1/26/2007 7:10:43 AM

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYld
Ra-228 by GPC				Ra-226/Ra-228 Deem With Out Blk Subt.							CRDL			
Calc	TF	FILTER	JMK811AD	RA-228	1.51E+00	(9.82E-01)	U4	PCI/SA	R	1.89E+00	4.14E+00		85%	
Calc	TF	FILTER	JMK811AD	RA-228	2.39E+00	(1.15E+00)		PCI/SA	R	2.10E+00	4.59E+00		85%	
Calc	TF	FILTER	JMK811AD	RA-228	2.60E-01	(1.08E+00)	U4	PCI/SA	R	2.33E+00	5.10E+00		85%	
Calc	TF	FILTER	JMK811AD	RA-228	1.39E+00	(6.20E-01)		PCI/SA	A	1.22E+00	2.66E+00	✓	85%	
Calc	TF	FILTER	JMK811AD	RA-228	1.01E-01	(5.31E+00)	U4	PCI/SA	R	1.16E+01	2.54E+01		85%	
Calc	TF	FILTER	JMLA11AD	RA-228	1.44E+00	(9.22E-01)	U4	PCI/SA	R	1.76E+00	3.87E+00		80%	
Calc	TF	FILTER	JMLA11AD	RA-228	4.17E+00	(1.25E+00)		PCI/SA	R	1.95E+00	4.29E+00		80%	
Calc	TF	FILTER	JMLA11AD	RA-228	2.41E+00	(1.19E+00)		PCI/SA	R	2.17E+00	4.76E+00		80%	
Calc	TF	FILTER	JMLA11AD	RA-228	2.67E+00	(6.52E-01)		PCI/SA	A	1.13E+00	2.49E+00	✓	80%	
Calc	TF	FILTER	JMLA11AD	RA-228	4.01E+00	(5.43E+00)	U4	PCI/SA	R	1.12E+01	2.46E+01		80%	
Calc	TF	FILTER	JMLA41AD	RA-228	7.06E-01	(9.00E-01)	U4	PCI/SA	R	1.86E+00	4.05E+00		90%	
Calc	TF	FILTER	JMLA41AD	RA-228	-3.31E-01	(9.15E-01)	U4	PCI/SA	R	2.06E+00	4.49E+00		90%	
Calc	TF	FILTER	JMLA41AD	RA-228	1.18E+00	(1.13E+00)	U4	PCI/SA	R	2.29E+00	4.99E+00		90%	
Calc	TF	FILTER	JMLA41AD	RA-228	5.18E-01	(5.71E-01)	U4	PCI/SA	A	1.19E+00	2.60E+00	✓	90%	
Calc	TF	FILTER	JMLA41AD	RA-228	-4.85E+00	(4.94E+00)	U4	PCI/SA	R	1.16E+01	2.53E+01		90%	
Calc	TF	FILTER	JMLA71AD	RA-228	2.98E+00	(9.96E-01)		PCI/SA	R	1.61E+00	3.55E+00		91%	
Calc	TF	FILTER	JMLA71AD	RA-228	8.43E-01	(8.78E-01)	U4	PCI/SA	R	1.77E+00	3.90E+00		91%	
Calc	TF	FILTER	JMLA71AD	RA-228	1.09E+00	(9.88E-01)	U4	PCI/SA	R	1.96E+00	4.33E+00		91%	
Calc	TF	FILTER	JMLA71AD	RA-228	1.64E+00	(5.52E-01)		PCI/SA	A	1.03E+00	2.27E+00	✓	91%	
Calc	TF	FILTER	JMLA71AD	RA-228	-1.47E+00	(4.43E+00)	U4	PCI/SA	R	9.99E+00	2.21E+01		91%	
Calc	TF	FILTER	JMLA81AD	RA-228	2.47E+00	(1.01E+00)		PCI/SA	R	1.72E+00	3.82E+00		78%	
Calc	TF	FILTER	JMLA81AD	RA-228	-2.32E-01	(8.41E-01)	U4	PCI/SA	R	1.89E+00	4.20E+00		78%	
Calc	TF	FILTER	JMLA81AD	RA-228	1.12E+00	(1.06E+00)	U4	PCI/SA	R	2.10E+00	4.66E+00		78%	
Calc	TF	FILTER	JMLA81AD	RA-228	1.12E+00	(5.63E-01)		PCI/SA	A	1.10E+00	2.44E+00	✓	78%	
Calc	TF	FILTER	JMLA81AD	RA-228	9.52E+00	(6.01E+00)	U4	PCI/SA	R	1.14E+01	2.51E+01		78%	
Calc	TF	FILTER	JMLT21AD	RA-228	5.04E+00	(1.25E+00)		PCI/SA	R	1.73E+00	3.83E+00		84%	
Calc	TF	FILTER	JMLT21AD	RA-228	1.83E+00	(1.03E+00)		PCI/SA	R	1.91E+00	4.21E+00		84%	
Calc	TF	FILTER	JMLT21AD	RA-228	2.86E+00	(1.22E+00)		PCI/SA	R	2.12E+00	4.68E+00		84%	
Calc	TF	FILTER	JMLT21AD	RA-228	3.24E+00	(6.76E-01)		PCI/SA	A	1.11E+00	2.45E+00	✓	84%	
Calc	TF	FILTER	JMLT21AD	RA-228	1.34E+01	(5.64E+00)		PCI/SA	R	8.86E+00	2.05E+01		84%	
Calc	TF	FILTER	JMLT61AD	RA-228	3.98E+00	(1.06E+00)		PCI/SA	R	1.16E+00	2.79E+00		82%	
Calc	TF	FILTER	JMLT61AD	RA-228	2.15E+00	(8.94E-01)		PCI/SA	R	1.29E+00	3.09E+00		82%	
Calc	TF	FILTER	JMLT61AD	RA-228	7.08E-01	(7.62E-01)	U4	PCI/SA	R	1.43E+00	3.43E+00		82%	
Calc	TF	FILTER	JMLT61AD	RA-228	2.28E+00	(5.26E-01)		PCI/SA	A	7.48E-01	1.79E+00	✓	82%	
Calc	TF	FILTER	JMLT61AD	RA-228	1.58E+00	(4.17E+00)	U4	PCI/SA	R	8.69E+00	2.02E+01		82%	
Calc	TF	FILTER	JMLT71AD	RA-228	3.33E+00	(9.70E-01)		PCI/SA	R	1.28E+00	2.96E+00		90%	
Calc	TF	FILTER	JMLT71AD	RA-228	1.05E+00	(7.76E-01)	U4	PCI/SA	R	1.42E+00	3.28E+00		90%	
Calc	TF	FILTER	JMLT71AD	RA-228	1.35E+00	(8.83E-01)	U4	PCI/SA	R	1.57E+00	3.64E+00		90%	

() - (1s Uncertainities)
IDC - Instrument Detection Level in Conc Units
MLcC- Method Decision Level in Conc Units
MDC - Minimum Detectable Concentration
*Std - Lc, MDC using StdDev for Set of Blanks

Q - Qualifier, U is Less Than Lc = 1.645*TPU
All Results Displayed to Three Digits Reguardless of Significants
Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:39
RADCALC v4.8.26
STL Richland

Batch Nbr: 7011229

Alpha Beta, Ra-228 by GPC , Results Summary Report

1/26/2007 7:10:44 AM

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYld
Calc	TF	FILTER	JMLT71AD	RA-228	1.91E+00	(5.08E-01)		PCI/SA	A	8.21E-01	1.90E+00		90%	
Calc	TF	FILTER	JMLT71AD	RA-228	-2.60E+00	(3.38E+00)	U4	PCI/SA	R	8.16E+00	1.89E+01		90%	
Calc	TF	FILTER	JMLT81AD	RA-228	2.54E+00	(9.44E-01)		PCI/SA	R	1.37E+00	3.20E+00		76%	
Calc	TF	FILTER	JMLT81AD	RA-228	2.05E+00	(9.56E-01)		PCI/SA	R	1.51E+00	3.55E+00		76%	
Calc	TF	FILTER	JMLT81AD	RA-228	2.06E+00	(1.03E+00)		PCI/SA	R	1.68E+00	3.94E+00		76%	
Calc	TF	FILTER	JMLT81AD	RA-228	2.22E+00	(5.65E-01)		PCI/SA	A	8.78E-01	2.06E+00		76%	
Calc	TF	FILTER	JMLT81AD	RA-228	-7.12E+00	(3.75E+00)	U4	PCI/SA	R	9.89E+00	2.25E+01		76%	
Calc	TF	FILTER	JMLVA1AD	RA-228	2.32E+00	(7.70E-01)		PCI/SA	R	1.01E+00	2.39E+00		93%	
Calc	TF	FILTER	JMLVA1AD	RA-228	2.57E+00	(8.55E-01)		PCI/SA	R	1.12E+00	2.66E+00		93%	
Calc	TF	FILTER	JMLVA1AD	RA-228	1.82E+00	(8.18E-01)		PCI/SA	R	1.24E+00	2.95E+00		93%	
Calc	TF	FILTER	JMLVA1AD	RA-228	2.24E+00	(4.71E-01)		PCI/SA	A	6.48E-01	1.54E+00		93%	
Calc	TF	FILTER	JMLVA1AD	RA-228	-4.44E+00	(3.34E+00)	U4	PCI/SA	R	8.29E+00	1.88E+01		93%	
Calc	TF	FILTER	JMLVW1AD	RA-228	3.46E+00	(9.47E-01)		PCI/SA	R	1.02E+00	2.41E+00		90%	
Calc	TF	FILTER	JMLVW1AD	RA-228	8.29E-01	(6.36E-01)	U4	PCI/SA	R	1.14E+00	2.68E+00		90%	
Calc	TF	FILTER	JMLVW1AD	RA-228	5.80E-01	(6.53E-01)	U4	PCI/SA	R	1.25E+00	2.94E+00		90%	
Calc	TF	FILTER	JMLVW1AD	RA-228	1.62E+00	(4.38E-01)		PCI/SA	A	6.56E-01	1.55E+00		90%	
Calc	TF	FILTER	JMLVW1AD	RA-228	7.38E-01	(3.79E+00)	U4	PCI/SA	R	8.12E+00	1.85E+01		90%	
Calc	TF	FILTER	JMLV31AD	RA-228	4.12E+00	(1.09E+00)		PCI/SA	R	1.12E+00	2.61E+00		86%	
Calc	TF	FILTER	JMLV31AD	RA-228	7.46E-01	(6.68E-01)	U4	PCI/SA	R	1.24E+00	2.89E+00		86%	
Calc	TF	FILTER	JMLV31AD	RA-228	1.49E+00	(8.28E-01)		PCI/SA	R	1.36E+00	3.18E+00		86%	
Calc	TF	FILTER	JMLV31AD	RA-228	2.12E+00	(5.08E-01)		PCI/SA	A	7.16E-01	1.67E+00		86%	
Calc	TF	FILTER	JMLV31AD	RA-228	2.77E+00	(3.91E+00)	U4	PCI/SA	R	7.86E+00	1.80E+01		86%	
Calc	TF	FILTER	JMLV51AD	RA-228	3.10E+00	(9.91E-01)		PCI/SA	R	1.26E+00	2.93E+00		81%	
Calc	TF	FILTER	JMLV51AD	RA-228	1.58E+00	(8.48E-01)		PCI/SA	R	1.40E+00	3.25E+00		81%	
Calc	TF	FILTER	JMLV51AD	RA-228	8.12E-01	(8.08E-01)	U4	PCI/SA	R	1.53E+00	3.57E+00		81%	
Calc	TF	FILTER	JMLV51AD	RA-228	1.83E+00	(5.11E-01)		PCI/SA	A	8.06E-01	1.88E+00		81%	
Calc	TF	FILTER	JMLV51AD	RA-228	3.50E+00	(4.17E+00)	U4	PCI/SA	R	8.21E+00	1.89E+01		81%	
Calc	TF	FILTER	JMLV81AD	RA-228	1.43E+00	(7.87E-01)		PCI/SA	R	1.33E+00	3.07E+00		79%	
Calc	TF	FILTER	JMLV81AD	RA-228	9.17E-01	(7.88E-01)	U4	PCI/SA	R	1.48E+00	3.40E+00		79%	
Calc	TF	FILTER	JMLV81AD	RA-228	-2.75E-01	(7.06E-01)	U4	PCI/SA	R	1.62E+00	3.74E+00		79%	
Calc	TF	FILTER	JMLV81AD	RA-228	6.90E-01	(4.40E-01)	U4	PCI/SA	A	8.53E-01	1.97E+00		79%	
Calc	TF	FILTER	JMLV81AD	RA-228	-6.75E+00	(3.31E+00)	U4	PCI/SA	R	9.00E+00	2.05E+01		79%	
Calc	TF	FILTER	JMLV91AD	RA-228	1.98E+00	(7.20E-01)		PCI/SA	R	1.00E+00	2.37E+00		88%	
Calc	TF	FILTER	JMLV91AD	RA-228	1.31E+00	(6.86E-01)		PCI/SA	R	1.11E+00	2.63E+00		88%	
Calc	TF	FILTER	JMLV91AD	RA-228	1.76E+00	(7.96E-01)		PCI/SA	R	1.22E+00	2.89E+00		88%	
Calc	TF	FILTER	JMLV91AD	RA-228	1.68E+00	(4.24E-01)		PCI/SA	A	6.42E-01	1.52E+00		88%	
Calc	TF	FILTER	JMLV91AD	RA-228	-5.61E+00	(2.97E+00)	U4	PCI/SA	R	8.02E+00	1.84E+01		88%	
Calc	TF	FILTER	JMN9F1AA	RA-228	3.99E-01	(1.96E-01)		PCI/SA	R	3.26E-01	7.53E-01	B	80%	
Calc	TF	FILTER	JMN9F1AA	RA-228	2.78E-01	(1.99E-01)	U4	PCI/SA	R	3.62E-01	8.35E-01	B	80%	

() - (1s Uncertainities)
IDC - Instrument Detection Level in Conc Units
MLcC- Method Decision Level in Conc Units
MDC - Minimum Detectable Concentration
*Std - Lc, MDC using StdDev for Set of Blanks

Q - Qualifier, U is Less Than Lc = 1.645*TPU
All Results Displayed to Three Digits Reguardless of Significants
Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:78
RADCALC v4.8.26
STL Richland

Alpha Beta, Ra-228 by GPC , Results

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYld
Calc	TF	FILTER	**JMN9F1AA**	RA-228	**2.15E-01**	**(2.08E-01)**	U4	PCI/SA	R	3.98E-01	9.18E-01	**B**	80%	
Calc	TF	FILTER	**JMN9F1AA**	RA-228	**2.98E-01**	**(1.16E-01)**		PCI/SA	A	2.09E-01	4.82E-01	**B**	80%	
Calc	TF	FILTER	**JMN9F1AA**	RA-228	**1.17E+00**	**(1.58E+00)**	U4	PCI/SA	R	3.26E+00	7.14E+00	**B**	80%	
Calc	TF	FILTER	**JMN9F1AC**	RA-228	**4.20E+00**	**(5.67E-01)**		PCI/SA	R	2.91E-01	6.65E-01	**S**	93%	83%
Calc	TF	FILTER	**JMN9F1AC**	RA-228	**3.38E+00**	**(5.01E-01)**		PCI/SA	R	3.23E-01	7.38E-01	**S**	93%	67%
Calc	TF	FILTER	**JMN9F1AC**	RA-228	**3.30E+00**	**(5.08E-01)**		PCI/SA	R	3.55E-01	8.12E-01	**S**	93%	65%
Calc	TF	FILTER	**JMN9F1AC**	RA-228	**3.62E+00**	**(3.04E-01)**		PCI/SA	A	1.86E-01	4.26E-01	**S**	93%	72%
Calc	TF	FILTER	**JMN9F1AC**	RA-228	**3.14E+00**	**(1.51E+00)**		PCI/SA	R	2.74E+00	6.00E+00	**S**	93%	62%

Angela Long
1/26/07

P Anderson
1-29-07

() - (1s Uncertainities)
IDC - Instrument Detection Level in Conc Units
MLcC- Method Decision Level in Conc Units
MDC - Minimum Detectable Concentration
*Std - Lc, MDC using StdDev for Set of Blanks

Q - Qualifier, U is Less Than Lc = 1.645*TPU
All Results Displayed to Three Digits Reguardless of Significants
Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:85
RADCALC v4.8.26
STL Richland

STL RICHLAND

Batch Nbr: 7011229 — Alpha Beta, Ra-228 by GPC , Calculated Results — 1/26/2007 7:10:44 AM

1st analysis - not reported Detailed Report

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
1	Calc	TF	FILTER	*STLE	Ra228WoBS	JMK811AD	PCI/SA		12/05/06 12:25	01/26/07 05:53	01/17/07 09:47	RATA25303	1	1.00 SA	
536403,P0812					,J7A090287-1 v4.8.26		FILTER			29.0	01/25/07 09:25	RATA25303 Alq	101%	0.235542 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/25/07 13:40	RA-228	51	315	GPC7A	1	N	N	5.4275E-01	1.0000E+00	N	85%	N		1.5445E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(1.626E-02)	(0.000E+00)		7%			(0.000E+00)	4.245523		
1	01/25/07 14:36	RA-228	56	315	GPC7A	1	N	N	5.4275E-01	1.0000E+00	N	85%	N		1.7140E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(1.626E-02)	(0.000E+00)		7%			(0.000E+00)	4.245523		
2	01/25/07 15:31	RA-228	41	315	GPC7A	1	N	N	5.4275E-01	1.0000E+00	N	85%	N		1.9022E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(1.626E-02)	(0.000E+00)		7%			(0.000E+00)	4.245523		
3	01/26/07 05:53	RA-228	38	303	GPC7A	1	N	N	5.4275E-01	1.0000E+00	N	85%	N		9.6607E+00	4.5045E-01	1.0143E+00	
			50	400			N		(1.626E-02)	(0.000E+00)		7%			(0.000E+00)	4.245523		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	01/26/07	RA-228	R	**1.508698**	U4	2.32500E-01	0.777816	0.777816	1.00 SA	85%		4.138507		
				(0.982164)		(1.4956E-01)	(0.504743)	(0.504743)	(0.014142)			1.894526		
	01/26/07	RA-228	R	**2.394443**		3.32500E-01	1.234466	1.234466	1.00 SA	85%		4.592797		
				(1.149374)		(1.5610E-01)	(0.589083)	(0.589083)	(0.014142)			2.102491		
	01/26/07	RA-228	R	**0.259735**	U4	3.25000E-02	0.133907	0.133907	1.00 SA	85%		5.096956		
				(1.083456)		(1.3553E-01)	(0.558537)	(0.558537)	(0.014142)			2.333285		
	01/26/07	RA-228	A	**1.387625**		1.99167E-01	0.715396	0.715396	1.00 SA	85%		2.66125		
				(0.619998)		(8.5053E-02)	(0.318634)	(0.318634)	(0.008165)			1.218267		
	01/26/07	RA-228	R	**0.101472**	U4	2.50000E-03	0.052314	0.052314	1.00 SA	85%		25.430746		
				(5.306706)		(1.3074E-01)	(2.735895)	(2.735895)	(0.014142)			11.622319		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
2	Calc	TF	FILTER	*STLE	Ra228WoBS	JMLA11AD	PCI/SA		12/05/06 12:10	01/26/07 05:53	01/17/07 09:47	RATA25304	1	1.00 SA	
536403,P0813					,J7A090287-2 v4.8.26		FILTER			27.3	01/25/07 09:25	RATA25304 Alq	101%	0.249199 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/25/07 13:40	RA-228	46	278	GPC7B	1	N	N	5.4886E-01	1.0000E+00	N	80%	N		1.5445E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(1.577E-02)	(0.000E+00)		6%			(0.000E+00)	4.012856		
1	01/25/07 14:36	RA-228	64	278	GPC7B	1	N	N	5.4886E-01	1.0000E+00	N	80%	N		1.7140E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(1.577E-02)	(0.000E+00)		6%			(0.000E+00)	4.012856		
2	01/25/07 15:31	RA-228	50	278	GPC7B	1	N	N	5.4886E-01	1.0000E+00	N	80%	N		1.9022E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(1.577E-02)	(0.000E+00)		6%			(0.000E+00)	4.012856		

() - (1s Uncertainities), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU

RecCnt:2 RADCALC v4.8.26

IDC - Instrument Detection Level in Conc Units, MLcC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration

Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significants, Date/Time - mm/dd/yy hh:mm, 24hr Time

STL Richland

611

Batch Nbr: 7011229 — # Alpha Beta, Ra-228 by GPC , Calculated Results — 1/26/2007 7:10:45 AM

Sq	Calc Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
3	01/26/07 05:53	RA-228	41	288	GPC7B	1	N	N	5.4886E-01	1.0000E+00	N	80%	N		9.6607E+00	4.5045E-01	1.0143E+00	
			50	400			N		(1.577E-02)	(0.000E+00)		6%			(0.000E+00)	4.012856		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	01/26/07	RA-228	R	**1.443904**	U4	2.25000E-01	0.787569	0.787569	1.00 SA	80%		3.865984		
				(0.921957)		(1.4191E-01)	(0.501208)	(0.501208)	(0.014142)			1.760127		
	01/26/07	RA-228	R	**4.166248**		5.85000E-01	2.272458	2.272458	1.00 SA	80%		4.290359		
				(1.248538)		(1.6534E-01)	(0.670693)	(0.670693)	(0.014142)			1.953339		
	01/26/07	RA-228	R	**2.410587**		3.05000E-01	1.314842	1.314842	1.00 SA	80%		4.761319		
				(1.189765)		(1.4744E-01)	(0.645344)	(0.645344)	(0.014142)			2.16776		
	01/26/07	RA-228	A	**2.673579**		3.71667E-01	1.45829	1.45829	1.00 SA	80%		2.486005		
				(0.651868)		(8.7694E-02)	(0.352374)	(0.352374)	(0.008165)			1.131842		
	01/26/07	RA-228	R	**4.014042**	U4	1.00000E-01	2.189438	2.189438	1.00 SA	80%		24.573965		
				(5.429986)		(1.3491E-01)	(2.959571)	(2.959571)	(0.014142)			11.205831		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
3	Calc	TP	FILTER	*STLE	Ra228WoBS	**JMLA41AD**	**PCI/SA**		12/05/06 12:45	01/26/07 05:53	01/17/07 09:47	RATA25305	1	1.00 SA	
536403	P-0814				J7A090287-3 v4.8.26		FILTER			29.2	01/25/07 09:25	RATA25305 Alq	106%	0.24214 SA	

Sq	Calc Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/25/07 13:40	RA-228	46	323	GPC7C	1	N	N	5.1764E-01	1.0000E+00	N	90%	N		1.5445E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(1.657E-02)	(0.000E+00)		7%			(0.000E+00)	4.129844		
1	01/25/07 14:36	RA-228	38	323	GPC7C	1	N	N	5.1764E-01	1.0000E+00	N	90%	N		1.7140E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(1.657E-02)	(0.000E+00)		7%			(0.000E+00)	4.129844		
2	01/25/07 15:31	RA-228	48	323	GPC7C	1	N	N	5.1764E-01	1.0000E+00	N	90%	N		1.9022E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(1.657E-02)	(0.000E+00)		7%			(0.000E+00)	4.129844		
3	01/26/07 05:53	RA-228	35	330	GPC1B	1	N	N	5.2380E-01	1.0000E+00	N	90%	N		9.6640E+00	4.5045E-01	1.0143E+00	
			50	400			N		(1.539E-02)	(0.000E+00)		7%			(0.000E+00)	4.129844		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	01/26/07	RA-228	R	**0.706282**	U4	1.12500E-01	0.374328	0.374328	1.00 SA	90%		4.050193		
				(0.899909)		(1.4289E-01)	(0.476553)	(0.476553)	(0.014142)			1.856063		
	01/26/07	RA-228	R	**-0.330943**	U4	-4.75000E-02	-0.175399	-0.175399	1.00 SA	90%		4.49479		
				(0.914846)		(1.3122E-01)	(0.484781)	(0.484781)	(0.014142)			2.059806		
	01/26/07	RA-228	R	**1.179133**	U4	1.52500E-01	0.624938	0.624938	1.00 SA	90%		4.98819		
				(1.132528)		(1.4567E-01)	(0.599359)	(0.599359)	(0.014142)			2.285915		
	01/26/07	RA-228	A	**0.518157**	U4	7.25000E-02	0.274622	0.274622	1.00 SA	90%		2.60446		
				(0.570516)		(8.0868E-02)	(0.302094)	(0.302094)	(0.008165)			1.193534		
	01/26/07	RA-228	R	**-4.852576**	U4	-1.25000E-01	-2.571855	-2.571855	1.00 SA	90%		25.291755		
				(4.943828)		(1.2674E-01)	(2.616808)	(2.616808)	(0.014142)			11.600727		

() - (1s Uncertainities), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU

RecCnt:4 RADCALC v4.8.26

IDC - Instrument Detection Level in Conc Units, MLcC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration

STL Richland

Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significants, Date/Time - mm/dd/yy hh:mm, 24hr Time

Batch Nbr: 7011229 — # Alpha Beta, Ra-228 by GPC , Calculated Results — 1/26/2007 7:10:45 AM

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
4	Calc	TF	FILTER	*STLE	Ra228WoBS	JMLA71AD	PCi/SA		12/05/06 12:30	01/26/07 05:53	01/17/07 09:47	RATA25306	1	1.00 SA	
536403,F-0815					,J7A090287-4 v4.8.26		FILTER			29.6	01/25/07 09:25	RATA25306 Alq	106%	0.240988 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/25/07 13:41	RA-228	56	254	GPC1B	1	N	N	5.2361E-01	1.0000E+00	N	91%	N		1.5451E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(1.538E-02)	(0.000E+00)		7%			(0.000E+00)	4.149583		
1	01/25/07 14:31	RA-228	38	254	GPC1B	1	N	N	5.2361E-01	1.0000E+00	N	91%	N		1.6985E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(1.538E-02)	(0.000E+00)		7%			(0.000E+00)	4.149583		
2	01/25/07 15:26	RA-228	39	254	GPC1B	1	N	N	5.2361E-01	1.0000E+00	N	91%	N		1.8850E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(1.538E-02)	(0.000E+00)		7%			(0.000E+00)	4.149583		
3	01/26/07 05:53	RA-228	28	239	GPC1C	1	N	N	5.1189E-01	1.0000E+00	N	91%	N		9.6640E+00	4.5045E-01	1.0143E+00	
			50	400			N		(1.847E-02)	(0.000E+00)		7%			(0.000E+00)	4.149583		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/26/07	RA-228	R	**2.976638**		4.85000E-01	1.570102	1.570102	1.00 SA	91%		3.548818		
				(0.995907)		(1.5488E-01)	(0.518942)	(0.518942)	(0.014142)			1.609041		
	01/26/07	RA-228	R	**0.843378**	U4	1.25000E-01	0.44486	0.44486	1.00 SA	91%		3.901319		
				(0.878232)		(1.2957E-01)	(0.462668)	(0.462668)	(0.014142)			1.768865		
	01/26/07	RA-228	R	**1.085709**	U4	1.45000E-01	0.572684	0.572684	1.00 SA	91%		4.329573		
				(0.987603)		(1.3110E-01)	(0.520085)	(0.520085)	(0.014142)			1.963037		
	01/26/07	RA-228	A	**1.635242**		2.51667E-01	0.862549	0.862549	1.00 SA	91%		2.267006		
				(0.551612)		(8.0251E-02)	(0.289415)	(0.289415)	(0.008165)			1.027865		
	01/26/07	RA-228	R	**-1.472511**	U4	-3.75000E-02	-0.776713	-0.776713	1.00 SA	91%		22.088442		
				(4.426622)		(1.1267E-01)	(2.334583)	(2.334583)	(0.014142)			9.986015		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
5	Calc	TF	FILTER	*STLE	Ra228WoBS	JMLA81AD	PCi/SA		12/05/06 12:50	01/26/07 05:53	01/17/07 09:47	RATA25307	1	1.00 SA	
536403,000580					,J7A090287-5 v4.8.26		FILTER			29.5	01/25/07 09:25	RATA25307 Alq	91%	0.250659 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/25/07 13:41	RA-228	45	220	GPC1C	1	N	N	5.1183E-01	1.0000E+00	N	78%	N		1.5451E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(1.847E-02)	(0.000E+00)		6%			(0.000E+00)	3.989491		
1	01/25/07 14:31	RA-228	26	220	GPC1C	1	N	N	5.1183E-01	1.0000E+00	N	78%	N		1.6985E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(1.847E-02)	(0.000E+00)		6%			(0.000E+00)	3.989491		
2	01/25/07 15:26	RA-228	34	220	GPC1C	1	N	N	5.1183E-01	1.0000E+00	N	78%	N		1.8850E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(1.847E-02)	(0.000E+00)		6%			(0.000E+00)	3.989491		
3	01/26/07 05:53	RA-228	43	256	GPC1D	1	N	N	5.2165E-01	1.0000E+00	N	78%	N		9.6640E+00	4.5045E-01	1.0143E+00	
			50	400			N		(1.784E-02)	(0.000E+00)		6%			(0.000E+00)	3.989491		

() - (1s Uncertainities), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU

RecCnt:5 RADCALC v4.8.26

IDC - Instrument Detection Level in Conc Units, MLcC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration

Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significants, Date/Time - mm/dd/yy hh:mm, 24hr Time

STL Richland

Batch Nbr: 7011229 — # Alpha Beta, Ra-228 by GPC , Calculated Results — 1/26/2007 7:10:45 AM

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/26/07	RA-228	R	**2.466633**		3.50000E-01	1.353303	1.353303	1.00 SA	78%		3.819025		
				(1.012717)		(1.3919E-01)	(0.551154)	(0.551154)	(0.014142)			1.719546		
	01/26/07	RA-228	R	**-0.232426**	U4	-3.00000E-02	-0.127519	-0.127519	1.00 SA	78%		4.198364		
				(0.841041)		(1.0851E-01)	(0.461385)	(0.461385)	(0.014142)			1.890346		
	01/26/07	RA-228	R	**1.117741**	U4	1.30000E-01	0.613242	0.613242	1.00 SA	78%		4.659226		
				(1.058316)		(1.2237E-01)	(0.579764)	(0.579764)	(0.014142)			2.097853		
	01/26/07	RA-228	A	**1.117316**		1.50000E-01	0.613009	0.613009	1.00 SA	78%		2.439616		
				(0.563025)		(7.1589E-02)	(0.307819)	(0.307819)	(0.008165)			1.098456		
	01/26/07	RA-228	R	**9.515184**	U4	2.20000E-01	5.220449	5.220449	1.00 SA	78%		25.097916		
				(6.008134)		(1.3711E-01)	(3.285146)	(3.285146)	(0.014142)			11.38362		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
6	Calc	TF	FILTER	*STLE	Ra228WoBS	**JMLT21AD**	**PCI/SA**		12/11/06 11:40	01/26/07 05:54	01/17/07 09:47	RATA25308	1	1.00 SA	
536403,P-0816					,J7A100115-1 v4.8.26		FILTER			29.9	01/25/07 09:25	RATA25308 Alq	97%	0.238247 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/25/07 13:41	RA-228	68	245	GPC1D	1	N	N	5.2181E-01	1.0000E+00	N	84%	N		1.5451E+00	4.5045E-01	1.0123E+00	
			50	400			Y		(1.784E-02)	(0.000E+00)		7%			(0.000E+00)	4.197319		
1	01/25/07 14:31	RA-228	43	245	GPC1D	1	N	N	5.2181E-01	1.0000E+00	N	84%	N		1.6985E+00	4.5045E-01	1.0123E+00	
			50	400			Y		(1.784E-02)	(0.000E+00)		7%			(0.000E+00)	4.197319		
2	01/25/07 15:26	RA-228	48	245	GPC1D	1	N	N	5.2181E-01	1.0000E+00	N	84%	N		1.8850E+00	4.5045E-01	1.0123E+00	
			50	400			Y		(1.784E-02)	(0.000E+00)		7%			(0.000E+00)	4.197319		
3	01/26/07 05:54	RA-228	27	111	GPC2A	1	N	N	4.3033E-01	1.0000E+00	N	84%	N		9.6667E+00	4.5045E-01	1.0123E+00	
			50	400			N		(1.191E-02)	(0.000E+00)		7%			(0.000E+00)	4.197319		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/26/07	RA-228	R	**5.035622**		7.47500E-01	2.631131	2.631131	1.00 SA	84%		3.832197		
				(1.250711)		(1.6950E-01)	(0.63904)	(0.63904)	(0.014142)			1.734566		
	01/26/07	RA-228	R	**1.832926**		2.47500E-01	0.95771	0.95771	1.00 SA	84%		4.212846		
				(1.030447)		(1.3686E-01)	(0.536107)	(0.536107)	(0.014142)			1.906859		
	01/26/07	RA-228	R	**2.855999**		3.47500E-01	1.49227	1.49227	1.00 SA	84%		4.675297		
				(1.218235)		(1.4398E-01)	(0.631792)	(0.631792)	(0.014142)			2.116178		
	01/26/07	RA-228	A	**3.241516**		4.47500E-01	1.693704	1.693704	1.00 SA	84%		2.448031		
				(0.675787)		(8.7046E-02)	(0.348798)	(0.348798)	(0.008165)			1.108051		
	01/26/07	RA-228	R	**13.415996**		2.62500E-01	7.009906	7.009906	1.00 SA	84%		20.474967		
				(5.639012)		(1.0721E-01)	(2.923802)	(2.923802)	(0.014142)			8.857701		

STL RICHLAND

Batch Nbr: 7011229

Alpha Beta, Ra-228 by GPC , Calculated Results

1/26/2007 7:10:47 AM

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
16	Calc	TF	FILTER	*STLE	Ra228WoBS	JMN9F1AA	PCI/SA	B	12/05/06 12:25	01/26/07 06:51	01/17/07 09:47	RATA25318	1	1.00 SA	
0,INTRA-LAB BLANK					,J7A110000-229		FILTER			29.6	01/25/07 09:25	RATA25318 Alq	93%	1.00 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/25/07 13:36	RA-228	25	114	GPC4B	1	N	N	4.7227E-01	1.0000E+00	N	80%	N		1.5321E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(9.011E-03)	(0.000E+00)		6%			(0.000E+00)	1.00		
1	01/25/07 14:31	RA-228	21	114	GPC4B	1	N	N	4.7227E-01	1.0000E+00	N	80%	N		1.7002E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(9.011E-03)	(0.000E+00)		6%			(0.000E+00)	1.00		
2	01/25/07 15:22	RA-228	19	114	GPC4B	1	N	N	4.7227E-01	1.0000E+00	N	80%	N		1.8691E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(9.011E-03)	(0.000E+00)		6%			(0.000E+00)	1.00		
3	01/26/07 06:51	RA-228	43	303	GPC7A	1	N	N	5.4089E-01	1.0000E+00	N	80%	N		1.0765E+01	4.5045E-01	1.0143E+00	
			50	400			N		(1.620E-02)	(0.000E+00)		6%			(0.000E+00)	1.00		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/lLcC	BlkLcC/MDC	StdDvMdC/LcC
	01/26/07	RA-228	R	**0.399246**		2.15000E-01	0.873869	0.873869	1.00 SA	80%		0.752564		
				(0.196123)		(1.0350E-01)	(0.426776)	(0.426776)	(0.017321)			0.326152		
	01/26/07	RA-228	R	**0.278199**	U4	1.35000E-01	0.608922	0.608922	1.00 SA	80%		0.835148		
				(0.198589)		(9.5459E-02)	(0.433475)	(0.433475)	(0.017321)			0.361943		
	01/26/07	RA-228	R	**0.215215**	U4	9.50000E-02	0.471063	0.471063	1.00 SA	80%		0.918103		
				(0.207615)		(9.1173E-02)	(0.453743)	(0.453743)	(0.017321)			0.397895		
	01/26/07	RA-228	A	**0.297554**		1.48333E-01	0.651285	0.651285	1.00 SA	80%		0.482244		
				(0.115953)		(5.5914E-02)	(0.252965)	(0.252965)	(0.01)			0.208999		
	01/26/07	RA-228	R	**1.16769**	U4	1.02500E-01	2.555839	2.555839	1.00 SA	80%		7.137685		
				(1.578529)		(1.3818E-01)	(3.452434)	(3.452434)	(0.017321)			3.262053		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
17	Calc	TF	FILTER	*STLE	Ra228WoBS	JMN9F1AC	PCI/SA	S	12/05/06 12:25	01/26/07 06:51	01/17/07 09:47	RASC4320	1	1.00 SA	
0,INTRA-LAB CHECK					,J7A110000-229		FILTER			30.8	01/25/07 09:25	RASC4320 Alq	104%	1.00 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	01/25/07 13:36	RA-228	151	129	GPC4C	1	N	N	4.8160E-01	1.0000E+00	N	93%	N		1.5321E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(1.241E-02)	(0.000E+00)		7%			(0.000E+00)	1.00		
1	01/25/07 14:31	RA-228	114	129	GPC4C	1	N	N	4.8160E-01	1.0000E+00	N	93%	N		1.7002E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(1.241E-02)	(0.000E+00)		7%			(0.000E+00)	1.00		
2	01/25/07 15:22	RA-228	103	129	GPC4C	1	N	N	4.8160E-01	1.0000E+00	N	93%	N		1.8691E+00	4.5045E-01	1.0143E+00	
			50	400			Y		(1.241E-02)	(0.000E+00)		7%			(0.000E+00)	1.00		
3	01/26/07 06:51	RA-228	52	288	GPC7B	1	N	N	5.3695E-01	1.0000E+00	N	93%	N		1.0765E+01	4.5045E-01	1.0143E+00	
			50	400			N		(1.543E-02)	(0.000E+00)		7%			(0.000E+00)	1.00		

() - (1s Uncertainities), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU

IDC - Instrument Detection Level in Conc Units, MLcC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration

Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significants, Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:17

RADCALC v4.8.26

STL Richland

Batch Nbr: 7011229

Alpha Beta, Ra-228 by GPC , Calculated Results

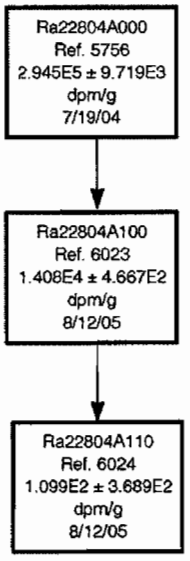
1/26/2007 7:10:47 AM

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/26/07	RA-228	R	**4.196371**		2.69750E+00	9.185009	9.185009	1.00 SA	93%	83%	0.665275		
				(0.567288)		(2.4740E-01)	(1.142604)	(1.142604)	(0.017321)			0.290652		
	01/26/07	RA-228	R	**3.379358**		1.95750E+00	7.396732	7.396732	1.00 SA	93%	67%	0.73828		
				(0.500948)		(2.1542E-01)	(1.024237)	(1.024237)	(0.017321)			0.322547		
	01/26/07	RA-228	R	**3.2975**		1.73750E+00	7.217563	7.217563	1.00 SA	93%	65%	0.811613		
				(0.508478)		(2.0495E-01)	(1.045376)	(1.045376)	(0.017321)			0.354585		
	01/26/07	RA-228	A	**3.62441**		2.13083E+00	7.933101	7.933101	1.00 SA	93%	72%	0.426309		
				(0.303921)		(1.2894E-01)	(0.618907)	(0.618907)	(0.01)			0.18625		
	01/26/07	RA-228	R	**3.137171**		3.20000E-01	6.866635	6.866635	1.00 SA	93%	62%	6.0018		
				(1.506917)		(1.5033E-01)	(3.278263)	(3.278263)	(0.017321)			2.736846		

RADIUM 228

STANDARDS AND TRACEABILITY

Ra22804A000



ISOTOPE DILUTION RECORD

1) Prepared by	TDA	2) Date Prepared	10/12/2005
3) Source Identification Number / Ref. Number	***RA22804A100***		***6023***
4) Source Activity (dpm ± dpm/g)	1.4082E+04	±	4.667E+02
5) Percent error of Source Activity	3.314 %		
6) Weight of Source Material used (g)	1.0212		
7) (% Error) of Weight of Source Material used	0.4700 %		
8) Diluent	1 M HCL		
9) Total Weight of the Dilution (g)	130.8		
10) (% Error) of Total Weight of the Dilution	0.2294 %		
11) Specific Activity of Diluted Solution dpm/g	***1.0994E+02***	±	***3.689E+00***
12) Total Uncertainty	3.355 %		
13) Dilution Identification Number / Ref. Number	***RA22804A110***		***6024***
14) Calibration Reference Date	7/19/2004		
15) Isotope Inventory File update by/date	tda		10/12/2005
16) Reviewed by/date	sew		10/31/2005
17) Location qclab		18) Exhausted	

****

CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = $\sqrt{(\%\ \text{error of Source Activity}^2 + \%\ \text{error of Wt. Used}^2 + \%\ \text{error of Dilution Wt.}^2)}$

Form: CC-006, 7/15/99, Rev 3

ISOTOPE DILUTION RECORD

1) Prepared by	TDA	2) Date Prepared	10/12/2005
3) Source Identification Number / Ref. Number	***RA22804A000***		***5756***
4) Source Activity (dpm ± dpm/g)	2.9453E+05	±	9.719E+03
5) Percent error of Source Activity	3.3 %		
6) Weight of Source Material used (g)	4.967		
7) (% Error) of Weight of Source Material used	0.0966 %		
8) Diluent	1 M HCL		
9) Total Weight of the Dilution (g)	103.89		
10) (% Error) of Total Weight of the Dilution	0.2888 %		
11) Specific Activity of Diluted Solution dpm/g	***1.4082E+04***	±	***4.667E+02***
12) Total Uncertainty	3.314 %		
13) Dilution Identification Number / Ref. Number	***RA22804A100***		***6023***
14) Calibration Reference Date	7/19/2004		
15) Isotope Inventory File update by/date	tda		10/12/2005
16) Reviewed by/date	SEW		1/17/2006
17) Location qclab		18) Exhausted	

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CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = $\sqrt{(\%\text{ error of Source Activity}^2 + \%\text{ error of Wt. Used}^2 + \%\text{ error of Dilution Wt.}^2)}$

Form: CC-006, 7/15/99, Rev 3

ISOTOPE DILUTION RECORD

1) Prepared by	W.G	2) Date Prepared	10/17/2002
3) Source Identification Number / Ref. Number	***RA22801A000***		***5025***
4) Source Activity (dpm ± dpm/g)	2.7299E+04	±	1.092E+03
5) Percent error of Source Activity	4.0 %		
6) Weight of Source Material used (g)	0.3819		
7) (% Error) of Weight of Source Material used	1.2569 %		
8) Diluent	1M HCL-5122		
9) Total Weight of the Dilution (g)	121.17		
10) (% Error) of Total Weight of the Dilution	0.2476 %		
11) Specific Activity of Diluted Solution dpm/g	***8.6040E+01***	***±***	***3.614E+00***
12) Total Uncertainty	4.200 %		
13) Dilution Identification Number / Ref. Number	***RA22801A200***		***5307***
14) Calibration Reference Date	10/17/2002		
15) Isotope Inventory File update by/date	W.G		10/17/2002
16) Reviewed by/date	SEW		10/31/2002
17) Location QCLAB/STWT0678	18) Exhausted		

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CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = $\sqrt{(\%\ \text{error of Source Activity}^2 + \%\ \text{error of Wt. Used}^2 + \%\ \text{error of Dilution Wt.}^2)}$

Form: CC-006, 7/15/99, Rev 3

ISOTOPE DILUTION RECORD

1) Prepared by	W.G	2) Date Prepared	3/19/2002
3) Source Identification Number / Ref. Number	***RA22801A100***		***5032***
4) Source Activity (dpm ± dpm/g)	1.9600E+03	±	8.402E+01
5) Percent error of Source Activity	4.287 %		
6) Weight of Source Material used (g)	4.4028		
7) (% Error) of Weight of Source Material used	0.1090 %		
8) Diluent	1M HCL-5122		
9) Total Weight of the Dilution (g)	121.34		
10) (% Error) of Total Weight of the Dilution	0.2472 %		
11) Specific Activity of Diluted Solution dpm/g	***7.1118E+01***	±	***3.055E+00***
12) Total Uncertainty	4.296 %		
13) Dilution Identification Number / Ref. Number	***RA22801A110***		***5123***
14) Calibration Reference Date	3/19/2002		
15) Isotope Inventory File update by/date	W.G		3/19/2002
16) Reviewed by/date	SEW		3/20/2002
17) Location QCLAB/STWT0558	18) Exhausted		

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CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = $\sqrt{(\%\ \text{error of Source Activity}^2 + \%\ \text{error of Wt. Used}^2 + \%\ \text{error of Dilution Wt.}^2)}$

Form: CC-006, 7/15/99, Rev 3

ISOTOPE DILUTION RECORD

1) Prepared by	W.G	2) Date Prepared	10/25/2001
3) Source Identification Number / Ref. Number	***RA22801A000***		***5025***
4) Source Activity (dpm ± dpm/g)	3.0707E+04	±	1.228E+02
5) Percent error of Source Activity	4.0 %		
6) Weight of Source Material used (g)	1.3397		
7) (% Error) of Weight of Source Material used	0.3583 %		
8) Diluent	1M HCL-5031		
9) Total Weight of the Dilution (g)	20.01		
10) (% Error) of Total Weight of the Dilution	1.4993 %		
11) Specific Activity of Diluted Solution dpm/g	***2.0559E+03***	±	***8.813E+01***
12) Total Uncertainty	4.287 %		
13) Dilution Identification Number / Ref. Number	***RA22801A100***		***5032***
14) Calibration Reference Date	10/25/2001		
15) Isotope Inventory File update by/date	W.G		10/25/2001
16) Reviewed by/date	RROSS		10/29/2001
17) Location QCLAB/STWT0496	18) Exhausted		

****

CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = $\sqrt{(\%\text{ error of Source Activity}^2 + \%\text{ error of Wt. Used}^2 + \%\text{ error of Dilution Wt.}^2)}$

Form: CC-006, 7/15/99, Rev 3

SEVERN TRENT SERVICES

ISOTOPE RECORD FORM

1) Isotope	RA-228	2) Reference Number	5025
3) Half Life	5.75 yrs	4) Storage Location	PM

5) Source Identification Number: RA22801A000

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CALIBRATION DATA

6) Activity as Received Units	2575 dps
7) Overall Uncertainty Percent	4.0%
8) Reference Date / Time	10/12/01 12:00 EST (9.00AM)
9) Activity dpm/g	30839.62 ± 1233.58 dpm/g
10) Volume or Mass (ml/g)	5.00979 g
11) Calibrated by	ANALYTICS
12) Certificate Solution Number	62588-310

****

SURVEY DATA

13) Date Received	10/16/2001
14) Surveyed by	W.G
15) Survey Reading (Beta/Gamma) cpm	<200CPM
16) Survey Reading (Alpha) cpm	<200CPM

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17) Activity Conversion: 2575.0 dps*60s/m/5.00979g=30839.62 ± 1233.58dpm/g

18) Remarks: Transferred to acid leach vial 10/25/01 stwt0495

19) Isotope File Updated by	10/17/10 W.G
20) QC Approved	RROSS 10/23/01

RADIUM 228

CONTINUING CALIBRATION

Quality Assurance Report. Generated 6-FEB-2007 16:07:05.29

QA Filename : $DISK1:[QUAD7.QA]CHK.QAF;2

-- Multi-Test Full Report --

Description : quad 7a 1" beta %eff
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 42.000000 Upper Bound : 44.540001

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 43.265854 Std Deviation : 0.424905

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 11:48	CHK		42.8000	| | |
1-JAN-2007 12:12	CHK		No Value	| | |
2-JAN-2007 04:50	CHK		43.6000	| | |
3-JAN-2007 04:49	CHK		42.7000	| | |
4-JAN-2007 04:34	CHK		43.3000	| | |
5-JAN-2007 04:31	CHK		43.7000	| | |
5-JAN-2007 04:48	CHK		No Value	| | |
6-JAN-2007 06:25	CHK		43.2000	| | |
8-JAN-2007 04:56	CHK		43.1000	| | |
9-JAN-2007 04:54	CHK		43.5000	| | |
10-JAN-2007 04:54	CHK		43.0000	| | |
11-JAN-2007 04:59	CHK		43.4000	| | |
12-JAN-2007 04:42	CHK		43.2000	| | |
13-JAN-2007 06:04	CHK		43.1000	| | |
15-JAN-2007 04:58	CHK		43.2000	| | |
16-JAN-2007 04:50	CHK		42.9000	| | |
16-JAN-2007 05:09	CHK		No Value	| | |
17-JAN-2007 04:45	CHK		42.3000	|In| |
18-JAN-2007 04:47	CHK		43.0000	| | |
18-JAN-2007 05:05	CHK		No Value	| | |
19-JAN-2007 04:49	CHK		42.3000	|In| |

20-JAN-2007 06:56 CHK 42.1000 |In| |
21-JAN-2007 07:12 CHK 42.4000 |In| |
22-JAN-2007 05:04 CHK 43.3000 | | |
23-JAN-2007 04:55 CHK 42.5000 | | |
24-JAN-2007 04:42 CHK 42.1000 |In| |
25-JAN-2007 04:46 CHK 43.3000 | | |
25-JAN-2007 05:04 CHK No Value | | |
26-JAN-2007 04:52 CHK 42.5000 | | |
27-JAN-2007 07:26 CHK 42.1000 |In| |
29-JAN-2007 05:08 CHK 43.2000 | | |
30-JAN-2007 05:02 CHK 42.3000 |In| |
31-JAN-2007 05:03 CHK 42.6000 | | |
1-FEB-2007 05:00 CHK 43.3000 | | |
2-FEB-2007 04:59 CHK 42.7000 | | |

-- Multi-Test Full Report --

Description : quad 7b 1" beta %eff
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 43.400002 Upper Bound : 46.299999

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 44.839024 Std Deviation : 0.481627

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
----

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
----

1-JAN-2007 11:48 CHK 44.6000 | | |
1-JAN-2007 12:12 CHK No Value | | |
2-JAN-2007 04:50 CHK 45.4000 | | |
3-JAN-2007 04:49 CHK 44.9000 | | |
4-JAN-2007 04:34 CHK 45.2000 | | |
5-JAN-2007 04:31 CHK 44.1000 | | |
5-JAN-2007 04:48 CHK No Value | | |
6-JAN-2007 06:25 CHK 44.3000 | | |

8-JAN-2007 04:56	CHK	44.3000	| |	
9-JAN-2007 04:54	CHK	44.3000	| |	
10-JAN-2007 04:54	CHK	44.0000	| |	
11-JAN-2007 04:59	CHK	44.6000	| |	
12-JAN-2007 04:42	CHK	44.9000	| |	
13-JAN-2007 06:04	CHK	44.2000	| |	
15-JAN-2007 04:58	CHK	43.9000	| |	
16-JAN-2007 04:50	CHK	44.4000	| |	
16-JAN-2007 05:09	CHK	No Value	| |	
17-JAN-2007 04:45	CHK	44.3000	| |	
18-JAN-2007 04:47	CHK	43.9000	| |	
18-JAN-2007 05:05	CHK	No Value	| |	
19-JAN-2007 04:49	CHK	45.0000	| |	
20-JAN-2007 06:56	CHK	44.8000	| |	
21-JAN-2007 07:12	CHK	45.1000	| |	
22-JAN-2007 05:04	CHK	44.2000	| |	
23-JAN-2007 04:55	CHK	44.3000	| |	
24-JAN-2007 04:42	CHK	44.6000	| |	
25-JAN-2007 04:46	CHK	45.8000	| |	
25-JAN-2007 05:04	CHK	No Value	| |	
26-JAN-2007 04:52	CHK	44.3000	| |	
27-JAN-2007 07:26	CHK	45.2000	| |	
29-JAN-2007 05:08	CHK	44.5000	| |	
30-JAN-2007 05:02	CHK	44.0000	| |	
31-JAN-2007 05:03	CHK	44.2000	| |	
1-FEB-2007 05:00	CHK	44.3000	| |	
2-FEB-2007 04:59	CHK	45.5000	| |	

-- Multi-Test Full Report --

Description : quad 7c 1" beta %eff
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 38.619999 Upper Bound : 43.060001

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 40.844910 Std Deviation : 0.739721

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

1-JAN-2007 11:48	CHK	38.5000	Be|Ac|	
1-JAN-2007 12:12	CHK	38.8000	|In|	
2-JAN-2007 04:50	CHK	39.3000	|In|	

Quality Assurance Multi-Test Full Report (continued) Page : 3

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
3-JAN-2007 04:49	CHK		38.5000	Be|Ac|
4-JAN-2007 04:34	CHK		39.6000	| | |
5-JAN-2007 04:31	CHK		38.3000	Be|Ac|
5-JAN-2007 04:48	CHK		38.2000	Be|Ac|
6-JAN-2007 06:25	CHK		38.8000	|In|
8-JAN-2007 04:56	CHK		39.3000	|In|
9-JAN-2007 04:54	CHK		39.1000	|In|
10-JAN-2007 04:54	CHK		39.5000	| | |
11-JAN-2007 04:59	CHK		39.4000	| | |
12-JAN-2007 04:42	CHK		39.4000	| | |
13-JAN-2007 06:04	CHK		38.4000	Be|Ac|
15-JAN-2007 04:58	CHK		38.4000	Be|Ac|
16-JAN-2007 04:50	CHK		38.5000	Be|Ac|
16-JAN-2007 05:09	CHK		38.7000	|In|
17-JAN-2007 04:45	CHK		39.1000	|In|
18-JAN-2007 04:47	CHK		38.4000	Be|Ac|
18-JAN-2007 05:05	CHK		38.6000	Be|Ac|
19-JAN-2007 04:49	CHK		39.6000	| | |
20-JAN-2007 06:56	CHK		38.9000	|In|
21-JAN-2007 07:12	CHK		38.8000	|In|
22-JAN-2007 05:04	CHK		39.3000	|In|
23-JAN-2007 04:55	CHK		37.9000	Be|Ac|
24-JAN-2007 04:42	CHK		38.7000	|In|
25-JAN-2007 04:46	CHK		38.6000	Be|Ac|
25-JAN-2007 05:04	CHK		39.3000	|In|
26-JAN-2007 04:52	CHK		38.2000	Be|Ac|
27-JAN-2007 07:26	CHK		39.3000	|In|
29-JAN-2007 05:08	CHK		39.4000	| | |
30-JAN-2007 05:02	CHK		39.3000	|In|
31-JAN-2007 05:03	CHK		39.1000	|In|
1-FEB-2007 05:00	CHK		38.5000	Be|Ac|
2-FEB-2007 04:59	CHK		40.1000	| | |

-- Multi-Test Full Report --

STL/PITCHLAND 669

Description : quad 7d 1" beta %eff
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 17.680000 Upper Bound : 52.099998

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 34.890854 Std Deviation : 5.735348

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 11:48	CHK		27.2000	| | |
1-JAN-2007 12:12	CHK		No Value	| | |
2-JAN-2007 04:50	CHK		28.6000	| | |
3-JAN-2007 04:49	CHK		30.6000	| | |
4-JAN-2007 04:34	CHK		30.4000	| | |
5-JAN-2007 04:31	CHK		28.1000	| | |

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
5-JAN-2007 04:48	CHK		No Value	| | |
6-JAN-2007 06:25	CHK		40.9000	| | |
8-JAN-2007 04:56	CHK		27.3000	| | |
9-JAN-2007 04:54	CHK		29.4000	| | |
10-JAN-2007 04:54	CHK		30.7000	| | |
11-JAN-2007 04:59	CHK		29.4000	| | |
12-JAN-2007 04:42	CHK		26.9000	| | |
13-JAN-2007 06:04	CHK		27.0000	| | |
15-JAN-2007 04:58	CHK		25.8000	| | |
16-JAN-2007 04:50	CHK		24.0000	| | |
16-JAN-2007 05:09	CHK		No Value	| | |
17-JAN-2007 04:45	CHK		24.7000	| | |
18-JAN-2007 04:47	CHK		26.1000	| | |
18-JAN-2007 05:05	CHK		No Value	| | |
19-JAN-2007 04:49	CHK		26.1000	| | |
20-JAN-2007 06:56	CHK		27.5000	| | |
21-JAN-2007 07:12	CHK		43.7000	| | |
22-JAN-2007 05:04	CHK		26.7000	| | |
23-JAN-2007 04:55	CHK		27.5000	| | |

24-JAN-2007 04:42	CHK	27.7000	| |	|
25-JAN-2007 04:46	CHK	27.4000	| |	|
25-JAN-2007 05:04	CHK	No Value	| |	|
26-JAN-2007 04:52	CHK	27.3000	| |	|
27-JAN-2007 07:26	CHK	26.3000	| |	|
29-JAN-2007 05:08	CHK	26.4000	| |	|
30-JAN-2007 05:02	CHK	27.1000	| |	|
31-JAN-2007 05:03	CHK	28.1000	| |	|
1-FEB-2007 05:00	CHK	25.2000	| |	|
2-FEB-2007 04:59	CHK	35.1000	| |	|

Quality Assurance Report. Generated 6-FEB-2007 16:07:06.34

QA Filename : $DISK1:[QUAD7.QA]BKG_1.QAF;2

-- Multi-Test Full Report --

Description : quad 7a 1" beta bkg, cpm
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.734474 Std Deviation : 0.058613

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej	
1-JAN-2007 19:21	BKG		0.7100	| | |	|
3-JAN-2007 04:23	BKG		0.7700	| | |	|
4-JAN-2007 02:28	BKG		0.7900	| | |	|
5-JAN-2007 02:50	BKG		0.7400	| | |	|
6-JAN-2007 00:40	BKG		0.6800	| | |	|
6-JAN-2007 18:55	BKG		0.7200	| | |	|
7-JAN-2007 19:08	BKG		0.7600	| | |	|
9-JAN-2007 02:17	BKG		0.7300	| | |	|
10-JAN-2007 02:15	BKG		0.7300	| | |	|
11-JAN-2007 02:30	BKG		0.7800	| | |	|
12-JAN-2007 02:38	BKG		0.7900	| | |	|
13-JAN-2007 00:11	BKG		0.9400	|Ac| |	|
13-JAN-2007 19:54	BKG		0.7800	| | |	|
14-JAN-2007 21:02	BKG		0.7900	| | |	|

16-JAN-2007 02:44	BKG	0.8300	| |	
17-JAN-2007 02:19	BKG	0.7000	| |	
18-JAN-2007 03:03	BKG	0.7500	| |	
19-JAN-2007 02:59	BKG	0.7400	| |	
20-JAN-2007 02:35	BKG	0.7300	| |	
20-JAN-2007 18:57	BKG	0.7400	| |	
21-JAN-2007 19:43	BKG	0.7800	| |	
23-JAN-2007 02:22	BKG	0.7800	| |	
24-JAN-2007 02:55	BKG	0.7900	| |	
25-JAN-2007 02:40	BKG	0.7900	| |	
25-JAN-2007 23:56	BKG	0.7600	| |	
26-JAN-2007 04:41		No Value	| |	
27-JAN-2007 02:12	BKG	0.8500	| |	
27-JAN-2007 20:03	BKG	0.7400	| |	
28-JAN-2007 20:17	BKG	0.7000	| |	
30-JAN-2007 01:37	BKG	0.7400	| |	
31-JAN-2007 03:32	BKG	0.7900	| |	
1-FEB-2007 02:41	BKG	0.7400	| |	
2-FEB-2007 02:36	BKG	0.7800	| |	
3-FEB-2007 02:23	BKG	0.7700	| |	
3-FEB-2007 20:15	BKG	0.8400	| |	
4-FEB-2007 13:19	BKG	0.8300	| |	
4-FEB-2007 20:07	BKG	0.7400	| |	

-- Multi-Test Full Report --

Description : quad 7b 1" beta bkg, cpm
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.723632 Std Deviation : 0.057219

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 19:21	BKG		0.7500	| | |
3-JAN-2007 04:23	BKG		0.7400	| | |

4-JAN-2007 02:28	BKG	0.7100		
5-JAN-2007 02:50	BKG	0.7900		
6-JAN-2007 00:40	BKG	0.6700		
6-JAN-2007 18:55	BKG	0.7200		
7-JAN-2007 19:08	BKG	0.7400		
9-JAN-2007 02:17	BKG	0.5600	In	
10-JAN-2007 02:15	BKG	0.6800		
11-JAN-2007 02:30	BKG	0.7200		
12-JAN-2007 02:38	BKG	0.6600		
13-JAN-2007 00:11	BKG	0.7700		
13-JAN-2007 19:54	BKG	0.7600		
14-JAN-2007 21:02	BKG	0.6700		
16-JAN-2007 02:44	BKG	0.9300	Ac	
17-JAN-2007 02:19	BKG	0.6700		
18-JAN-2007 03:03	BKG	0.7500		
19-JAN-2007 02:59	BKG	0.7000		
20-JAN-2007 02:35	BKG	0.8000		
20-JAN-2007 18:57	BKG	0.6700		
21-JAN-2007 19:43	BKG	0.6800		
23-JAN-2007 02:22	BKG	0.7700		
24-JAN-2007 02:55	BKG	0.8100		
25-JAN-2007 02:40	BKG	0.7000		
25-JAN-2007 23:56	BKG	0.7200		
26-JAN-2007 04:41		No Value		
27-JAN-2007 02:12	BKG	0.7900		
27-JAN-2007 20:03	BKG	0.7100		
28-JAN-2007 20:17	BKG	0.6800		
30-JAN-2007 01:37	BKG	0.7300		
31-JAN-2007 03:32	BKG	0.7600		
1-FEB-2007 02:41	BKG	0.7000		
2-FEB-2007 02:36	BKG	0.6800		
3-FEB-2007 02:23	BKG	0.7100		
3-FEB-2007 20:15	BKG	0.8400	In	
4-FEB-2007 13:19	BKG	0.8600	In	
4-FEB-2007 20:07	BKG	0.7700		

-- Multi-Test Full Report --

Description : quad 7c 1" beta bkg, cpm
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----

Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.737188 Std Deviation : 0.120272

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 19:21	BKG		0.8700	| | |
3-JAN-2007 04:23	BKG		0.8000	| | |
4-JAN-2007 02:28	BKG		0.9100	| | |
5-JAN-2007 02:50	BKG		0.8400	| | |

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
6-JAN-2007 00:40	BKG		0.7900	| | |
6-JAN-2007 18:55	BKG		0.7000	| | |
7-JAN-2007 19:08	BKG		0.7300	| | |
9-JAN-2007 02:17	BKG		0.7900	| | |
10-JAN-2007 02:15	BKG		0.8400	| | |
11-JAN-2007 02:30	BKG		0.7800	| | |
12-JAN-2007 02:38	BKG		0.8600	| | |
13-JAN-2007 00:11	BKG		1.0500	|In| |
13-JAN-2007 19:54	BKG		0.8100	| | |
14-JAN-2007 21:02	BKG		0.7700	| | |
16-JAN-2007 02:44	BKG		0.9100	| | |
17-JAN-2007 02:19	BKG		0.8500	| | |
18-JAN-2007 03:03	BKG		0.9400	| | |
19-JAN-2007 02:59	BKG		0.8100	| | |
20-JAN-2007 02:35	BKG		0.8400	| | |
20-JAN-2007 18:57	BKG		0.7700	| | |
21-JAN-2007 19:43	BKG		0.7900	| | |
23-JAN-2007 02:22	BKG		0.7600	| | |
24-JAN-2007 02:55	BKG		0.8000	| | |
25-JAN-2007 02:40	BKG		0.8100	| | |
25-JAN-2007 23:56	BKG		0.8300	| | |
26-JAN-2007 04:41			No Value	| | |
27-JAN-2007 02:12	BKG		0.8900	| | |
27-JAN-2007 20:03	BKG		0.7900	| | |
28-JAN-2007 20:17	BKG		0.8600	| | |
30-JAN-2007 01:37	BKG		0.7900	| | |
31-JAN-2007 03:32	BKG		0.8300	| | |
1-FEB-2007 02:41	BKG		0.8200	| | |
2-FEB-2007 02:36	BKG		0.7700	| | |

3-FEB-2007 02:23	BKG	0.8900	| | |
3-FEB-2007 20:15	BKG	0.8900	| | |
4-FEB-2007 13:19	BKG	0.8800	| | |
4-FEB-2007 20:07	BKG	0.9000	| | |

-- Multi-Test Full Report --

Description : quad 7d 1" beta bkg, cpm
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.616895 Std Deviation : 0.086919

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 19:21	BKG		0.5500	| | |
3-JAN-2007 04:23	BKG		0.6600	| | |
4-JAN-2007 02:28	BKG		0.7000	| | |
5-JAN-2007 02:50	BKG		0.4700	| | |
6-JAN-2007 00:40	BKG		0.7300	| | |
6-JAN-2007 18:55	BKG		0.4700	| | |
7-JAN-2007 19:08	BKG		0.5200	| | |
9-JAN-2007 02:17	BKG		0.4500	| | |

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
10-JAN-2007 02:15	BKG		0.6400	| | |
11-JAN-2007 02:30	BKG		0.7100	| | |
12-JAN-2007 02:38	BKG		0.4500	| | |
13-JAN-2007 00:11	BKG		0.6100	| | |
13-JAN-2007 19:54	BKG		0.5400	| | |
14-JAN-2007 21:02	BKG		0.5800	| | |
16-JAN-2007 02:44	BKG		0.7400	| | |
17-JAN-2007 02:19	BKG		0.4000	|In| |
18-JAN-2007 03:03	BKG		0.4000	|In| |
19-JAN-2007 02:59	BKG		0.4500	| | |
20-JAN-2007 02:35	BKG		0.6700	| | |
20-JAN-2007 18:57	BKG		0.4600	| | |
21-JAN-2007 19:43	BKG		0.4600	| | |

23-JAN-2007 02:22	BKG	0.6400	| | |
24-JAN-2007 02:55	BKG	0.4200	|In| |
25-JAN-2007 02:40	BKG	0.5100	| | |
25-JAN-2007 23:56	BKG	0.5000	| | |
26-JAN-2007 04:41		No Value	| | |
27-JAN-2007 02:12	BKG	0.5200	| | |
27-JAN-2007 20:03	BKG	0.4600	| | |
28-JAN-2007 20:17	BKG	0.4300	|In| |
30-JAN-2007 01:37	BKG	0.4100	|In| |
31-JAN-2007 03:32	BKG	0.4100	|In| |
1-FEB-2007 02:41	BKG	0.3800	|In| |
2-FEB-2007 02:36	BKG	0.5400	| | |
3-FEB-2007 02:23	BKG	0.7300	| | |
3-FEB-2007 20:15	BKG	0.7400	| | |
4-FEB-2007 13:19	BKG	0.7100	| | |
4-FEB-2007 20:07	BKG	0.6900	| | |

Quality Assurance Report. Generated 6-MAR-2007 11:02:35.36

QA Filename : $DISK1:[QUAD5.QA]CHK.QAF;2

Resubmitted

-- Multi-Test Full Report --

Description : quad 5a 1.5" beta %eff
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 46.680000 Upper Bound : 50.200001

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 48.442482 Std Deviation : 0.586548

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
15-DEC-2006 05:00	CHK		47.8000	| | |
16-DEC-2006 05:44	CHK		48.5000	| | |
17-DEC-2006 07:54	CHK		48.3000	| | |
18-DEC-2006 05:04	CHK		48.0000	| | |
19-DEC-2006 04:50	CHK		48.1000	| | |
20-DEC-2006 04:53	CHK		47.8000	| | |
21-DEC-2006 05:38	CHK		48.5000	| | |
22-DEC-2006 05:45	CHK		48.7000	| | |
23-DEC-2006 08:04	CHK		48.2000	| | |
26-DEC-2006 04:41	CHK		48.6000	| | |
27-DEC-2006 04:47	CHK		49.2000	| | |
28-DEC-2006 05:25	CHK		48.3000	| | |
29-DEC-2006 05:20	CHK		48.7000	| | |
30-DEC-2006 05:40	CHK		47.9000	| | |
1-JAN-2007 11:48	CHK		48.4000	| | |
2-JAN-2007 04:45	CHK		47.8000	| | |
3-JAN-2007 04:48	CHK		48.6000	| | |
4-JAN-2007 04:39	CHK		48.9000	| | |
5-JAN-2007 04:35	CHK		48.1000	| | |
6-JAN-2007 06:25	CHK		48.4000	| | |
8-JAN-2007 04:56	CHK		48.0000	| | |

9-JAN-2007 04:49	CHK	48.4000	| |	|
10-JAN-2007 04:59	CHK	49.1000	| |	|
11-JAN-2007 04:59	CHK	48.6000	| |	|
12-JAN-2007 04:47	CHK	48.1000	| |	|
13-JAN-2007 05:59	CHK	48.2000	| |	|
14-JAN-2007 09:50	CHK	48.8000	| |	|
15-JAN-2007 04:53	CHK	47.5000	| |	|
16-JAN-2007 04:50	CHK	47.4000	| |	|
17-JAN-2007 04:50	CHK	48.5000	| |	|
18-JAN-2007 04:47	CHK	48.5000	| |	|
19-JAN-2007 04:49	CHK	49.0000	| |	|
20-JAN-2007 06:56	CHK	47.7000	| |	|
21-JAN-2007 07:12	CHK	47.9000	| |	|
22-JAN-2007 05:04	CHK	47.5000	| |	|
23-JAN-2007 04:59	CHK	48.8000	| |	|
24-JAN-2007 04:46	CHK	47.1000	|In|	|
25-JAN-2007 04:51	CHK	48.3000	| |	|

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
26-JAN-2007 04:51	CHK		49.0000	| | |
27-JAN-2007 07:25	CHK		48.3000	| | |
29-JAN-2007 05:03	CHK		54.0000	Ab|Ac| |
29-JAN-2007 05:22	CHK		48.1000	| | |
30-JAN-2007 05:02	CHK		47.9000	| | |
31-JAN-2007 05:08	CHK		48.9000	| | |
1-FEB-2007 04:55	CHK		47.5000	| | |
2-FEB-2007 04:59	CHK		49.1000	| | |
5-FEB-2007 05:11	CHK		49.2000	| | |
6-FEB-2007 05:03	CHK		48.3000	| | |
7-FEB-2007 05:00	CHK		48.3000	| | |
8-FEB-2007 04:52	CHK		48.9000	| | |
9-FEB-2007 04:55	CHK		47.6000	| | |
10-FEB-2007 07:34	CHK		48.7000	| | |
12-FEB-2007 05:07	CHK		48.9000	| | |
13-FEB-2007 04:56	CHK		48.7000	| | |
14-FEB-2007 04:39	CHK		48.0000	| | |

-- Multi-Test Full Report --

Description : quad 5b 1.5" beta %eff
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 50.700001 Upper Bound : 54.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 52.327450 Std Deviation : 0.553486

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
15-DEC-2006 05:00	CHK		52.0000	| | |
16-DEC-2006 05:44	CHK		52.1000	| | |
17-DEC-2006 07:54	CHK		51.9000	| | |
18-DEC-2006 05:04	CHK		51.8000	| | |
19-DEC-2006 04:50	CHK		51.5000	| | |
20-DEC-2006 04:53	CHK		51.9000	| | |
21-DEC-2006 05:38	CHK		52.2000	| | |
22-DEC-2006 05:45	CHK		51.8000	| | |
23-DEC-2006 08:04	CHK		51.2000	|In| |
26-DEC-2006 04:41	CHK		51.8000	| | |
27-DEC-2006 04:47	CHK		52.2000	| | |
28-DEC-2006 05:25	CHK		50.9000	|In| |
29-DEC-2006 05:20	CHK		51.9000	| | |
30-DEC-2006 05:40	CHK		51.1000	|In| |
1-JAN-2007 11:48	CHK		52.1000	| | |
2-JAN-2007 04:45	CHK		52.2000	| | |
3-JAN-2007 04:48	CHK		52.3000	| | |
4-JAN-2007 04:39	CHK		51.8000	| | |
5-JAN-2007 04:35	CHK		52.6000	| | |
6-JAN-2007 06:25	CHK		51.6000	| | |
8-JAN-2007 04:56	CHK		52.0000	| | |

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-JAN-2007 04:49	CHK		52.2000	| | |
10-JAN-2007 04:59	CHK		52.2000	| | |
11-JAN-2007 04:59	CHK		51.4000	| | |
12-JAN-2007 04:47	CHK		52.2000	| | |
13-JAN-2007 05:59	CHK		51.9000	| | |
14-JAN-2007 09:50	CHK		52.6000	| | |

15-JAN-2007 04:53	CHK	52.4000	|	| |
16-JAN-2007 04:50	CHK	52.0000	|	| |
17-JAN-2007 04:50	CHK	52.4000	|	| |
18-JAN-2007 04:47	CHK	51.6000	|	| |
19-JAN-2007 04:49	CHK	51.3000	|	| |
20-JAN-2007 06:56	CHK	52.2000	|	| |
21-JAN-2007 07:12	CHK	51.3000	|	| |
22-JAN-2007 05:04	CHK	51.4000	|	| |
23-JAN-2007 04:59	CHK	52.3000	|	| |
24-JAN-2007 04:46	CHK	51.8000	|	| |
25-JAN-2007 04:51	CHK	52.9000	|	| |
26-JAN-2007 04:51	CHK	51.6000	|	| |
27-JAN-2007 07:25	CHK	51.5000	|	| |
29-JAN-2007 05:03	CHK	57.6000	Ab|Ac|	|
29-JAN-2007 05:22	CHK	52.3000	|	| |
30-JAN-2007 05:02	CHK	51.5000	|	| |
31-JAN-2007 05:08	CHK	52.4000	|	| |
1-FEB-2007 04:55	CHK	51.4000	|	| |
2-FEB-2007 04:59	CHK	52.6000	|	| |
5-FEB-2007 05:11	CHK	51.3000	|	| |
6-FEB-2007 05:03	CHK	52.4000	|	| |
7-FEB-2007 05:00	CHK	52.5000	|	| |
8-FEB-2007 04:52	CHK	52.3000	|	| |
9-FEB-2007 04:55	CHK	52.8000	|	| |
10-FEB-2007 07:34	CHK	52.4000	|	| |
12-FEB-2007 05:07	CHK	52.1000	|	| |
13-FEB-2007 04:56	CHK	51.6000	|	| |
14-FEB-2007 04:39	CHK	52.4000	|	| |

-- Multi-Test Full Report --

Description : quad 5c 1.5" beta %eff
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 49.700001 Upper Bound : 53.599998

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 51.695179 Std Deviation : 0.644022

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
15-DEC-2006 05:00	CHK		51.4000	| | |
16-DEC-2006 05:44	CHK		51.4000	| | |
17-DEC-2006 07:54	CHK		51.5000	| | |
18-DEC-2006 05:04	CHK		51.8000	| | |

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Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
19-DEC-2006 04:50	CHK		50.8000	| | |
20-DEC-2006 04:53	CHK		51.4000	| | |
21-DEC-2006 05:38	CHK		51.1000	| | |
22-DEC-2006 05:45	CHK		51.3000	| | |
23-DEC-2006 08:04	CHK		51.5000	| | |
26-DEC-2006 04:41	CHK		50.6000	| | |
27-DEC-2006 04:47	CHK		50.9000	| | |
28-DEC-2006 05:25	CHK		51.7000	| | |
29-DEC-2006 05:20	CHK		50.7000	| | |
30-DEC-2006 05:40	CHK		51.4000	| | |
1-JAN-2007 11:48	CHK		51.9000	| | |
2-JAN-2007 04:45	CHK		50.6000	| | |
3-JAN-2007 04:48	CHK		51.3000	| | |
4-JAN-2007 04:39	CHK		51.4000	| | |
5-JAN-2007 04:35	CHK		50.8000	| | |
6-JAN-2007 06:25	CHK		50.6000	| | |
8-JAN-2007 04:56	CHK		52.3000	| | |
9-JAN-2007 04:49	CHK		51.9000	| | |
10-JAN-2007 04:59	CHK		51.0000	| | |
11-JAN-2007 04:59	CHK		50.4000	|In| |
12-JAN-2007 04:47	CHK		50.8000	| | |
13-JAN-2007 05:59	CHK		50.0000	|In| |
14-JAN-2007 09:50	CHK		50.2000	|In| |
15-JAN-2007 04:53	CHK		51.4000	| | |
16-JAN-2007 04:50	CHK		51.5000	| | |
17-JAN-2007 04:50	CHK		50.7000	| | |
18-JAN-2007 04:47	CHK		50.2000	|In| |
19-JAN-2007 04:49	CHK		51.4000	| | |
20-JAN-2007 06:56	CHK		51.6000	| | |
21-JAN-2007 07:12	CHK		51.8000	| | |
22-JAN-2007 05:04	CHK		50.8000	| | |
23-JAN-2007 04:59	CHK		51.0000	| | |
24-JAN-2007 04:46	CHK		50.7000	| | |

25-JAN-2007 04:51	CHK	51.1000	| | |
26-JAN-2007 04:51	CHK	51.0000	| | |
27-JAN-2007 07:25	CHK	50.9000	| | |
29-JAN-2007 05:03	CHK	56.5000	Ab|Ac| |
29-JAN-2007 05:22	CHK	50.7000	| | |
30-JAN-2007 05:02	CHK	50.8000	| | |
31-JAN-2007 05:08	CHK	50.8000	| | |
1-FEB-2007 04:55	CHK	50.3000	|In| |
2-FEB-2007 04:59	CHK	51.6000	| | |
5-FEB-2007 05:11	CHK	51.6000	| | |
6-FEB-2007 05:03	CHK	50.3000	|In| |
7-FEB-2007 05:00	CHK	49.6000	Be|Ac| |
8-FEB-2007 04:52	CHK	50.7000	| | |
9-FEB-2007 04:55	CHK	50.9000	| | |
10-FEB-2007 07:34	CHK	51.7000	| | |
12-FEB-2007 05:07	CHK	51.8000	| | |
13-FEB-2007 04:56	CHK	51.7000	| | |
14-FEB-2007 04:39	CHK	50.9000	| | |

-- Multi-Test Full Report --

Description : quad 5d 1.5" beta %eff
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 46.000000 Upper Bound : 52.259998

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 49.158169 Std Deviation : 1.033556

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
15-DEC-2006 05:00	CHK		50.5000	| | |
16-DEC-2006 05:44	CHK		49.7000	| | |
17-DEC-2006 07:54	CHK		50.0000	| | |
18-DEC-2006 05:04	CHK		49.5000	| | |

19-DEC-2006 04:50	CHK	49.8000	|	|	|
20-DEC-2006 04:53	CHK	49.3000	|	|	|
21-DEC-2006 05:38	CHK	49.9000	|	|	|
22-DEC-2006 05:45	CHK	49.4000	|	|	|
23-DEC-2006 08:04	CHK	49.6000	|	|	|
26-DEC-2006 04:41	CHK	48.2000	|	|	|
27-DEC-2006 04:47	CHK	50.6000	|	|	|
28-DEC-2006 05:25	CHK	49.6000	|	|	|
29-DEC-2006 05:20	CHK	49.8000	|	|	|
30-DEC-2006 05:40	CHK	49.6000	|	|	|
1-JAN-2007 11:48	CHK	46.4000	|In|		|
2-JAN-2007 04:45	CHK	48.8000	|	|	|
3-JAN-2007 04:48	CHK	49.5000	|	|	|
4-JAN-2007 04:39	CHK	49.6000	|	|	|
5-JAN-2007 04:35	CHK	49.9000	|	|	|
6-JAN-2007 06:25	CHK	50.1000	|	|	|
8-JAN-2007 04:56	CHK	49.4000	|	|	|
9-JAN-2007 04:49	CHK	49.5000	|	|	|
10-JAN-2007 04:59	CHK	49.4000	|	|	|
11-JAN-2007 04:59	CHK	48.8000	|	|	|
12-JAN-2007 04:47	CHK	48.3000	|	|	|
13-JAN-2007 05:59	CHK	48.4000	|	|	|
14-JAN-2007 09:50	CHK	46.1000	|In|		|
15-JAN-2007 04:53	CHK	48.8000	|	|	|
16-JAN-2007 04:50	CHK	48.9000	|	|	|
17-JAN-2007 04:50	CHK	50.2000	|	|	|
18-JAN-2007 04:47	CHK	50.1000	|	|	|
19-JAN-2007 04:49	CHK	50.0000	|	|	|
20-JAN-2007 06:56	CHK	49.5000	|	|	|
21-JAN-2007 07:12	CHK	49.4000	|	|	|
22-JAN-2007 05:04	CHK	49.6000	|	|	|
23-JAN-2007 04:59	CHK	50.0000	|	|	|
24-JAN-2007 04:46	CHK	49.4000	|	|	|
25-JAN-2007 04:51	CHK	49.5000	|	|	|
26-JAN-2007 04:51	CHK	49.8000	|	|	|
27-JAN-2007 07:25	CHK	49.9000	|	|	|
29-JAN-2007 05:03	CHK	55.9000	Ab|Ac|		|
29-JAN-2007 05:22	CHK	49.0000	|	|	|
30-JAN-2007 05:02	CHK	49.7000	|	|	|
31-JAN-2007 05:08	CHK	49.0000	|	|	|
1-FEB-2007 04:55	CHK	49.6000	|	|	|
2-FEB-2007 04:59	CHK	51.1000	|	|	|
5-FEB-2007 05:11	CHK	50.1000	|	|	|

6-FEB-2007 05:03	CHK	49.5000	| |	|
7-FEB-2007 05:00	CHK	49.0000	| |	|
8-FEB-2007 04:52	CHK	50.2000	| |	|
9-FEB-2007 04:55	CHK	49.1000	| |	|
10-FEB-2007 07:34	CHK	49.4000	| |	|
12-FEB-2007 05:07	CHK	48.4000	| |	|
13-FEB-2007 04:56	CHK	49.4000	| |	|
14-FEB-2007 04:39	CHK	49.0000	| |	|

Quality Assurance Report. Generated 6-MAR-2007 11:02:36.53

QA Filename : $DISK1:[QUAD5.QA]BKG_15.QAF;2

-- Multi-Test Full Report --

Description : quad 5a 1.5" beta bkg, cpm
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.618656 Std Deviation : 0.062867

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
15-DEC-2006 02:30	BKG		0.6300	| | |
16-DEC-2006 03:28	BKG		0.6500	| | |
16-DEC-2006 19:44	BKG		0.6400	| | |
17-DEC-2006 19:57	BKG		0.6300	| | |
19-DEC-2006 01:50	BKG		0.6400	| | |
20-DEC-2006 03:22	BKG		0.5500	| | |
21-DEC-2006 01:32	BKG		0.6200	| | |
22-DEC-2006 04:23	BKG		0.5700	| | |
23-DEC-2006 01:29	BKG		0.6200	| | |
23-DEC-2006 20:36	BKG		0.5800	| | |
24-DEC-2006 19:44	BKG		0.5900	| | |
25-DEC-2006 20:26	BKG		0.6800	| | |
27-DEC-2006 03:16	BKG		0.5600	| | |
28-DEC-2006 01:39	BKG		0.6300	| | |
29-DEC-2006 02:18	BKG		0.6500	| | |
30-DEC-2006 02:54	BKG		0.6300	| | |

30-DEC-2006 20:47	BKG	0.5400	| |	|
31-DEC-2006 18:39	BKG	0.6500	| |	|
1-JAN-2007 19:21	BKG	0.7700	|In|	|
3-JAN-2007 04:28	BKG	0.5900	| |	|
4-JAN-2007 02:28	BKG	0.5900	| |	|
5-JAN-2007 02:49	BKG	0.6700	| |	|
6-JAN-2007 00:45	BKG	0.6400	| |	|
6-JAN-2007 18:53	BKG	0.6400	| |	|
7-JAN-2007 19:08	BKG	0.5800	| |	|
9-JAN-2007 02:21	BKG	0.6400	| |	|
10-JAN-2007 02:15	BKG	0.5800	| |	|
11-JAN-2007 02:30	BKG	0.6600	| |	|
12-JAN-2007 03:14	BKG	0.6100	| |	|
13-JAN-2007 02:37	BKG	0.6700	| |	|
13-JAN-2007 19:54	BKG	0.6200	| |	|
14-JAN-2007 21:02	BKG	0.6300	| |	|
16-JAN-2007 02:44	BKG	0.6800	| |	|
17-JAN-2007 02:19	BKG	0.6600	| |	|
18-JAN-2007 03:03	BKG	0.5700	| |	|
19-JAN-2007 02:59	BKG	0.6700	| |	|
20-JAN-2007 02:35	BKG	0.6200	| |	|
20-JAN-2007 18:57	BKG	0.6200	| |	|
21-JAN-2007 19:43	BKG	0.7000	| |	|
23-JAN-2007 02:21	BKG	0.6300	| |	|
24-JAN-2007 02:54	BKG	0.5700	| |	|

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
25-JAN-2007 02:36	BKG		0.6100	| | |
26-JAN-2007 02:13	BKG		0.6400	| | |
27-JAN-2007 02:12	BKG		0.6200	| | |
27-JAN-2007 20:03	BKG		0.6000	| | |
28-JAN-2007 20:17	BKG		0.6700	| | |
30-JAN-2007 01:36	BKG		0.6200	| | |
31-JAN-2007 03:31	BKG		0.5500	| | |
1-FEB-2007 02:35	BKG		0.6400	| | |
2-FEB-2007 01:31	BKG		0.6900	| | |
3-FEB-2007 02:23	BKG		0.6600	| | |
3-FEB-2007 21:25	BKG		0.6300	| | |
4-FEB-2007 20:05	BKG		0.5400	| | |
6-FEB-2007 02:57	BKG		0.6700	| | |
7-FEB-2007 02:51	BKG		0.6700	| | |

8-FEB-2007 01:20	BKG		0.6000	| | |
9-FEB-2007 03:19	BKG		0.6200	| | |
10-FEB-2007 01:33	BKG		0.6400	| | |
10-FEB-2007 20:18	BKG		0.6300	| | |
11-FEB-2007 20:02	BKG		0.5800	| | |
13-FEB-2007 03:15	BKG		0.5600	| | |
14-FEB-2007 03:00	BKG		0.6000	| | |

-- Multi-Test Full Report --

Description : quad 5b 1.5" beta bkg, cpm
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.746882 Std Deviation : 0.115370

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
15-DEC-2006 02:30	BKG		0.8000	| | |
16-DEC-2006 03:28	BKG		0.7600	| | |
16-DEC-2006 19:44	BKG		0.7200	| | |
17-DEC-2006 19:57	BKG		0.7000	| | |
19-DEC-2006 01:50	BKG		0.7300	| | |
20-DEC-2006 03:22	BKG		0.7300	| | |
21-DEC-2006 01:32	BKG		0.7500	| | |
22-DEC-2006 04:23	BKG		0.7200	| | |
23-DEC-2006 01:29	BKG		0.7100	| | |
23-DEC-2006 20:36	BKG		0.7100	| | |
24-DEC-2006 19:44	BKG		0.7500	| | |
25-DEC-2006 20:26	BKG		0.7200	| | |
27-DEC-2006 03:16	BKG		0.8000	| | |
28-DEC-2006 01:39	BKG		0.6900	| | |
29-DEC-2006 02:18	BKG		0.7300	| | |
30-DEC-2006 02:54	BKG		0.7100	| | |
30-DEC-2006 20:47	BKG		0.6400	| | |
31-DEC-2006 18:39	BKG		0.7900	| | |
1-JAN-2007 19:21	BKG		0.7400	| | |
3-JAN-2007 04:28	BKG		0.6900	| | |

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
4-JAN-2007 02:28	BKG		0.7700	| | |
5-JAN-2007 02:49	BKG		0.6700	| | |
6-JAN-2007 00:45	BKG		0.7600	| | |
6-JAN-2007 18:53	BKG		0.7300	| | |
7-JAN-2007 19:08	BKG		0.7700	| | |
9-JAN-2007 02:21	BKG		0.6300	| | |
10-JAN-2007 02:15	BKG		0.7400	| | |
11-JAN-2007 02:30	BKG		0.6500	| | |
12-JAN-2007 03:14	BKG		1.0100	|In| |
13-JAN-2007 02:37	BKG		0.7700	| | |
13-JAN-2007 19:54	BKG		0.7000	| | |
14-JAN-2007 21:02	BKG		0.7100	| | |
16-JAN-2007 02:44	BKG		0.7000	| | |
17-JAN-2007 02:19	BKG		0.7600	| | |
18-JAN-2007 03:03	BKG		0.7700	| | |
19-JAN-2007 02:59	BKG		0.7100	| | |
20-JAN-2007 02:35	BKG		0.7800	| | |
20-JAN-2007 18:57	BKG		0.7700	| | |
21-JAN-2007 19:43	BKG		0.6500	| | |
23-JAN-2007 02:21	BKG		0.8100	| | |
24-JAN-2007 02:54	BKG		0.7600	| | |
25-JAN-2007 02:36	BKG		0.6400	| | |
26-JAN-2007 02:13	BKG		0.7900	| | |
27-JAN-2007 02:12	BKG		0.7600	| | |
27-JAN-2007 20:03	BKG		0.6900	| | |
28-JAN-2007 20:17	BKG		0.6800	| | |
30-JAN-2007 01:36	BKG		0.7100	| | |
31-JAN-2007 03:31	BKG		0.7200	| | |
1-FEB-2007 02:35	BKG		0.7500	| | |
2-FEB-2007 01:31	BKG		0.8100	| | |
3-FEB-2007 02:23	BKG		0.7400	| | |
3-FEB-2007 21:25	BKG		0.7300	| | |
4-FEB-2007 20:05	BKG		0.7800	| | |
6-FEB-2007 02:57	BKG		0.7800	| | |
7-FEB-2007 02:51	BKG		0.6900	| | |
8-FEB-2007 01:20	BKG		0.7900	| | |
9-FEB-2007 03:19	BKG		0.7100	| | |
10-FEB-2007 01:33	BKG		0.7800	| | |
10-FEB-2007 20:18	BKG		0.7600	| | |
11-FEB-2007 20:02	BKG		0.7700	| | |
13-FEB-2007 03:15	BKG		0.7700	| | |

14-FEB-2007 03:00 BKG 0.7200 | | |

-- Multi-Test Full Report --

Description : quad 5c 1.5" beta bkg, cpm
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.701497 Std Deviation : 0.073863

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
15-DEC-2006 02:30	BKG		0.8100	| | |
16-DEC-2006 03:28	BKG		0.7100	| | |
16-DEC-2006 19:44	BKG		0.6500	| | |
17-DEC-2006 19:57	BKG		0.6200	| | |
19-DEC-2006 01:50	BKG		0.5700	| | |
20-DEC-2006 03:22	BKG		0.6100	| | |
21-DEC-2006 01:32	BKG		0.6500	| | |
22-DEC-2006 04:23	BKG		0.6900	| | |
23-DEC-2006 01:29	BKG		0.6300	| | |
23-DEC-2006 20:36	BKG		0.6200	| | |
24-DEC-2006 19:44	BKG		0.7600	| | |
25-DEC-2006 20:26	BKG		0.7600	| | |
27-DEC-2006 03:16	BKG		0.7200	| | |
28-DEC-2006 01:39	BKG		0.6600	| | |
29-DEC-2006 02:18	BKG		0.6900	| | |
30-DEC-2006 02:54	BKG		0.6900	| | |
30-DEC-2006 20:47	BKG		0.6600	| | |
31-DEC-2006 18:39	BKG		0.6400	| | |
1-JAN-2007 19:21	BKG		0.6600	| | |
3-JAN-2007 04:28	BKG		0.6200	| | |
4-JAN-2007 02:28	BKG		0.7200	| | |
5-JAN-2007 02:49	BKG		0.7400	| | |
6-JAN-2007 00:45	BKG		0.7800	| | |
6-JAN-2007 18:53	BKG		0.7000	| | |

7-JAN-2007 19:08	BKG	0.7000		
9-JAN-2007 02:21	BKG	0.6200		
10-JAN-2007 02:15	BKG	0.6400		
11-JAN-2007 02:30	BKG	0.6800		
12-JAN-2007 03:14	BKG	0.8000		
13-JAN-2007 02:37	BKG	0.6900		
13-JAN-2007 19:54	BKG	0.7200		
14-JAN-2007 21:02	BKG	0.6000		
16-JAN-2007 02:44	BKG	0.6500		
17-JAN-2007 02:19	BKG	0.8100		
18-JAN-2007 03:03	BKG	0.6700		
19-JAN-2007 02:59	BKG	0.6900		
20-JAN-2007 02:35	BKG	0.8300		
20-JAN-2007 18:57	BKG	0.7000		
21-JAN-2007 19:43	BKG	0.6300		
23-JAN-2007 02:21	BKG	0.7100		
24-JAN-2007 02:54	BKG	0.6800		
25-JAN-2007 02:36	BKG	0.8300		
26-JAN-2007 02:13	BKG	0.7000		
27-JAN-2007 02:12	BKG	0.9500	Ac	
27-JAN-2007 20:03	BKG	0.7500		
28-JAN-2007 20:17	BKG	0.6900		
30-JAN-2007 01:36	BKG	0.6600		
31-JAN-2007 03:31	BKG	0.7000		
1-FEB-2007 02:35	BKG	0.7500		
2-FEB-2007 01:31	BKG	0.6400		
3-FEB-2007 02:23	BKG	0.6800		
3-FEB-2007 21:25	BKG	0.7600		
4-FEB-2007 20:05	BKG	0.7200		
6-FEB-2007 02:57	BKG	0.7400		
7-FEB-2007 02:51	BKG	0.6500		

Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
8-FEB-2007 01:20	BKG		0.6900	
9-FEB-2007 03:19	BKG		0.7000	
10-FEB-2007 01:33	BKG		0.7400	
10-FEB-2007 20:18	BKG		0.7500	
11-FEB-2007 20:02	BKG		0.7300	
13-FEB-2007 03:15	BKG		0.6800	
14-FEB-2007 03:00	BKG		0.6400	

-- Multi-Test Full Report --

Description : quad 5d 1.5" beta bkg, cpm
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.587527 Std Deviation : 0.052312

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
15-DEC-2006 02:30	BKG		0.7100	|In| |
16-DEC-2006 03:28	BKG		0.6000	| | |
16-DEC-2006 19:44	BKG		0.6300	| | |
17-DEC-2006 19:57	BKG		0.5500	| | |
19-DEC-2006 01:50	BKG		0.6000	| | |
20-DEC-2006 03:22	BKG		0.6700	| | |
21-DEC-2006 01:32	BKG		0.6100	| | |
22-DEC-2006 04:23	BKG		0.6400	| | |
23-DEC-2006 01:29	BKG		0.7200	|In| |
23-DEC-2006 20:36	BKG		0.6200	| | |
24-DEC-2006 19:44	BKG		0.5800	| | |
25-DEC-2006 20:26	BKG		0.6700	| | |
27-DEC-2006 03:16	BKG		0.6300	| | |
28-DEC-2006 01:39	BKG		0.5700	| | |
29-DEC-2006 02:18	BKG		0.5700	| | |
30-DEC-2006 02:54	BKG		0.5900	| | |
30-DEC-2006 20:47	BKG		0.6500	| | |
31-DEC-2006 18:39	BKG		0.5700	| | |
1-JAN-2007 19:21	BKG		0.5800	| | |
3-JAN-2007 04:28	BKG		0.6400	| | |
4-JAN-2007 02:28	BKG		0.6500	| | |
5-JAN-2007 02:49	BKG		0.5900	| | |
6-JAN-2007 00:45	BKG		0.6400	| | |
6-JAN-2007 18:53	BKG		0.7000	|In| |
7-JAN-2007 19:08	BKG		0.5800	| | |
9-JAN-2007 02:21	BKG		0.6100	| | |
10-JAN-2007 02:15	BKG		0.6500	| | |
11-JAN-2007 02:30	BKG		0.6500	| | |
12-JAN-2007 03:14	BKG		0.5800	| | |
13-JAN-2007 02:37	BKG		0.5900	| | |

13-JAN-2007 19:54	BKG		0.6400	| | |
14-JAN-2007 21:02	BKG		0.5800	| | |
16-JAN-2007 02:44	BKG		0.6400	| | |
17-JAN-2007 02:19	BKG		0.6800	| | |

Quality Assurance Multi-Test Full Report (continued) Page : 6

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
18-JAN-2007 03:03	BKG		0.6800	| | |
19-JAN-2007 02:59	BKG		0.6200	| | |
20-JAN-2007 02:35	BKG		0.5900	| | |
20-JAN-2007 18:57	BKG		0.6600	| | |
21-JAN-2007 19:43	BKG		0.6500	| | |
23-JAN-2007 02:21	BKG		0.6800	| | |
24-JAN-2007 02:54	BKG		0.6600	| | |
25-JAN-2007 02:36	BKG		0.5800	| | |
26-JAN-2007 02:13	BKG		0.6900	| | |
27-JAN-2007 02:12	BKG		0.6800	| | |
27-JAN-2007 20:03	BKG		0.6000	| | |
28-JAN-2007 20:17	BKG		0.5800	| | |
30-JAN-2007 01:36	BKG		0.6500	| | |
31-JAN-2007 03:31	BKG		0.6800	| | |
1-FEB-2007 02:35	BKG		0.6200	| | |
2-FEB-2007 01:31	BKG		0.5700	| | |
3-FEB-2007 02:23	BKG		0.6200	| | |
3-FEB-2007 21:25	BKG		0.6300	| | |
4-FEB-2007 20:05	BKG		0.6100	| | |
6-FEB-2007 02:57	BKG		0.7300	|In| |
7-FEB-2007 02:51	BKG		0.6200	| | |
8-FEB-2007 01:20	BKG		0.6500	| | |
9-FEB-2007 03:19	BKG		0.6600	| | |
10-FEB-2007 01:33	BKG		0.5500	| | |
10-FEB-2007 20:18	BKG		0.6300	| | |
11-FEB-2007 20:02	BKG		0.6300	| | |
13-FEB-2007 03:15	BKG		0.6300	| | |
14-FEB-2007 03:00	BKG		0.6500	| | |

Quality Assurance Report. Generated 6-FEB-2007 16:05:33.73

QA Filename : $DISK1:[QUAD1.QA]CHK.QAF;2

-- Multi-Test Full Report --

Description : quad 1a 1" beta %eff
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 54.000000 Upper Bound : 57.799999

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 55.904877 Std Deviation : 0.629910

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 11:52	CHK		55.2000	| | |
2-JAN-2007 04:50	CHK		55.3000	| | |
3-JAN-2007 04:48	CHK		55.1000	| | |
4-JAN-2007 04:39	CHK		54.7000	| | |
5-JAN-2007 04:35	CHK		55.6000	| | |
6-JAN-2007 06:30	CHK		55.8000	| | |
8-JAN-2007 05:01	CHK		56.0000	| | |
9-JAN-2007 04:54	CHK		55.1000	| | |
10-JAN-2007 04:59	CHK		55.2000	| | |
11-JAN-2007 04:59	CHK		55.1000	| | |
12-JAN-2007 04:47	CHK		54.2000	|In| |
13-JAN-2007 06:04	CHK		55.0000	| | |
15-JAN-2007 04:58	CHK		55.4000	| | |
16-JAN-2007 04:55	CHK		56.0000	| | |
17-JAN-2007 04:50	CHK		55.4000	| | |
18-JAN-2007 04:52	CHK		55.1000	| | |
19-JAN-2007 04:49	CHK		55.9000	| | |
20-JAN-2007 06:55	CHK		55.7000	| | |
21-JAN-2007 07:11	CHK		57.1000	| | |
22-JAN-2007 05:04	CHK		55.4000	| | |
23-JAN-2007 04:59	CHK		55.3000	| | |

24-JAN-2007 04:46 CHK 55.6000 | | |
25-JAN-2007 04:51 CHK 55.2000 | | |
26-JAN-2007 04:51 CHK 55.3000 | | |
27-JAN-2007 07:25 CHK 55.7000 | | |
29-JAN-2007 05:03 CHK 55.7000 | | |
30-JAN-2007 05:02 CHK 55.3000 | | |
31-JAN-2007 05:08 CHK 55.6000 | | |
1-FEB-2007 04:59 CHK 55.2000 | | |
2-FEB-2007 05:04 CHK 54.5000 |In| |
3-FEB-2007 07:35 CHK 56.0000 | | |

-- Multi-Test Full Report --

Description : quad 1b 1" beta %eff
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 44.000000 Upper Bound : 51.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 47.543636 Std Deviation : 1.162435

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
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Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
----

1-JAN-2007 11:52 CHK 47.1000 | | |
2-JAN-2007 04:50 CHK 45.9000 | | |
3-JAN-2007 04:48 CHK 46.0000 | | |
4-JAN-2007 04:39 CHK 46.4000 | | |
5-JAN-2007 04:35 CHK 46.4000 | | |
6-JAN-2007 06:30 CHK 46.3000 | | |
8-JAN-2007 05:01 CHK 47.3000 | | |
9-JAN-2007 04:54 CHK 46.1000 | | |
10-JAN-2007 04:59 CHK 47.3000 | | |
11-JAN-2007 04:59 CHK 46.5000 | | |
12-JAN-2007 04:47 CHK 47.3000 | | |
13-JAN-2007 06:04 CHK 46.6000 | | |

15-JAN-2007 04:58 CHK 46.5000 | | |
16-JAN-2007 04:55 CHK 45.5000 | | |
17-JAN-2007 04:50 CHK 46.3000 | | |
18-JAN-2007 04:52 CHK 45.8000 | | |
19-JAN-2007 04:49 CHK 46.4000 | | |
20-JAN-2007 06:55 CHK 46.8000 | | |
21-JAN-2007 07:11 CHK 46.8000 | | |
22-JAN-2007 05:04 CHK 46.5000 | | |
23-JAN-2007 04:59 CHK 46.4000 | | |
24-JAN-2007 04:46 CHK 46.3000 | | |
25-JAN-2007 04:51 CHK 46.3000 | | |
26-JAN-2007 04:51 CHK 46.7000 | | |
27-JAN-2007 07:25 CHK 47.3000 | | |
29-JAN-2007 05:03 CHK 47.2000 | | |
30-JAN-2007 05:02 CHK 45.9000 | | |
31-JAN-2007 05:08 CHK 47.9000 | | |
1-FEB-2007 04:59 CHK 46.1000 | | |
2-FEB-2007 05:04 CHK 46.5000 | | |
3-FEB-2007 07:35 CHK 46.4000 | | |

-- Multi-Test Full Report --

Description : quad 1c 1" beta %eff
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 49.000000 Upper Bound : 54.200001

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 51.623169 Std Deviation : 0.712431

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
----
1-JAN-2007 11:52 CHK 51.3000 | | |
2-JAN-2007 04:50 CHK 50.4000 | | |
3-JAN-2007 04:48 CHK 51.3000 | | |
4-JAN-2007 04:39 CHK 50.6000 | | |
5-JAN-2007 04:35 CHK 51.7000 | | |
6-JAN-2007 06:30 CHK 50.9000 | | |
8-JAN-2007 05:01 CHK 50.7000 | | |

Quality Assurance Multi-Test Full Report (continued) Page : 3

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-JAN-2007 04:54	CHK		51.2000	| | |
10-JAN-2007 04:59	CHK		50.5000	| | |
11-JAN-2007 04:59	CHK		50.3000	| | |
12-JAN-2007 04:47	CHK		50.1000	|In| |
13-JAN-2007 06:04	CHK		52.0000	| | |
15-JAN-2007 04:58	CHK		51.2000	| | |
16-JAN-2007 04:55	CHK		51.3000	| | |
17-JAN-2007 04:50	CHK		50.8000	| | |
18-JAN-2007 04:52	CHK		51.5000	| | |
19-JAN-2007 04:49	CHK		49.9000	|In| |
20-JAN-2007 06:55	CHK		50.9000	| | |
21-JAN-2007 07:11	CHK		50.5000	| | |
22-JAN-2007 05:04	CHK		50.8000	| | |
23-JAN-2007 04:59	CHK		50.2000	| | |
24-JAN-2007 04:46	CHK		50.4000	| | |
25-JAN-2007 04:51	CHK		49.8000	|In| |
26-JAN-2007 04:51	CHK		51.0000	| | |
27-JAN-2007 07:25	CHK		50.7000	| | |
29-JAN-2007 05:03	CHK		51.1000	| | |
30-JAN-2007 05:02	CHK		50.9000	| | |
31-JAN-2007 05:08	CHK		50.6000	| | |
1-FEB-2007 04:59	CHK		50.2000	| | |
2-FEB-2007 05:04	CHK		50.4000	| | |
3-FEB-2007 07:35	CHK		52.6000	| | |

-- Multi-Test Full Report --

Description : quad 1d 1" beta %eff
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 46.599998 Upper Bound : 50.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 48.296951 Std Deviation : 0.544062

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 11:52	CHK		48.2000	| | |
2-JAN-2007 04:50	CHK		47.8000	| | |
3-JAN-2007 04:48	CHK		48.9000	| | |
4-JAN-2007 04:39	CHK		48.6000	| | |
5-JAN-2007 04:35	CHK		48.0000	| | |
6-JAN-2007 06:30	CHK		48.3000	| | |
8-JAN-2007 05:01	CHK		47.1000	|In| |
9-JAN-2007 04:54	CHK		48.4000	| | |
10-JAN-2007 04:59	CHK		48.0000	| | |
11-JAN-2007 04:59	CHK		48.5000	| | |
12-JAN-2007 04:47	CHK		48.3000	| | |
13-JAN-2007 06:04	CHK		47.3000	| | |
15-JAN-2007 04:58	CHK		48.6000	| | |
16-JAN-2007 04:55	CHK		47.5000	| | |

Quality Assurance Multi-Test Full Report (continued) Page : 4

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
17-JAN-2007 04:50	CHK		48.0000	| | |
18-JAN-2007 04:52	CHK		48.4000	| | |
19-JAN-2007 04:49	CHK		48.1000	| | |
20-JAN-2007 06:55	CHK		47.9000	| | |
21-JAN-2007 07:11	CHK		47.6000	| | |
22-JAN-2007 05:04	CHK		48.1000	| | |
23-JAN-2007 04:59	CHK		48.5000	| | |
24-JAN-2007 04:46	CHK		47.7000	| | |
25-JAN-2007 04:51	CHK		48.6000	| | |
26-JAN-2007 04:51	CHK		48.0000	| | |
27-JAN-2007 07:25	CHK		48.4000	| | |
29-JAN-2007 05:03	CHK		48.5000	| | |
30-JAN-2007 05:02	CHK		47.8000	| | |
31-JAN-2007 05:08	CHK		48.2000	| | |
1-FEB-2007 04:59	CHK		47.6000	| | |
2-FEB-2007 05:04	CHK		48.5000	| | |
3-FEB-2007 07:35	CHK		47.8000	| | |

Quality Assurance Report. Generated 6-FEB-2007 16:05:34.74

QA Filename : $DISK1:[QUAD1.QA]BKG_1.QAF;2

-- Multi-Test Full Report --

Description : quad 1a 1" beta bkg, cpm
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.617460 Std Deviation : 0.096733

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 19:25	BKG		0.8000	| | |
3-JAN-2007 04:27	BKG		0.6700	| | |
4-JAN-2007 02:27	BKG		0.5600	| | |
5-JAN-2007 02:49	BKG		0.5900	| | |
6-JAN-2007 00:45	BKG		0.6300	| | |
6-JAN-2007 18:51	BKG		0.5900	| | |
7-JAN-2007 19:07	BKG		0.6300	| | |
9-JAN-2007 02:20	BKG		0.6200	| | |
10-JAN-2007 02:15	BKG		0.6600	| | |
11-JAN-2007 02:30	BKG		0.5800	| | |
12-JAN-2007 02:37	BKG		0.6100	| | |
13-JAN-2007 02:36	BKG		0.5900	| | |
13-JAN-2007 19:53	BKG		0.6000	| | |
14-JAN-2007 21:00	BKG		0.6900	| | |
16-JAN-2007 02:42	BKG		0.6600	| | |
17-JAN-2007 02:15	BKG		0.6300	| | |
18-JAN-2007 02:53	BKG		0.6100	| | |
19-JAN-2007 02:31	BKG		0.6100	| | |
20-JAN-2007 02:22	BKG		0.6900	| | |
20-JAN-2007 18:57	BKG		0.9100	|Ac| |
21-JAN-2007 19:42	BKG		0.6100	| | |
23-JAN-2007 02:20	BKG		0.6500	| | |
24-JAN-2007 02:52	BKG		0.6600	| | |
25-JAN-2007 02:36	BKG		0.6500	| | |
26-JAN-2007 02:18	BKG		0.6400	| | |
27-JAN-2007 02:10	BKG		0.7000	| | |
27-JAN-2007 20:03	BKG		0.7600	| | |
28-JAN-2007 20:16	BKG		0.7900	| | |
30-JAN-2007 01:35	BKG		0.6500	| | |
31-JAN-2007 03:28	BKG		1.3500	|Ac| |

1-FEB-2007 02:40	BKG		1.4400	|Ac| |
2-FEB-2007 02:33	BKG		0.6700	| |
3-FEB-2007 02:11	BKG		0.6200	| |
3-FEB-2007 21:25	BKG		0.6500	| |
4-FEB-2007 20:05	BKG		0.5800	| |

-- Multi-Test Full Report --

Description : quad 1b 1" beta bkg, cpm
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.659153 Std Deviation : 0.179587

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 19:25	BKG		0.6400	| | |
3-JAN-2007 04:27	BKG		0.7700	| | |
4-JAN-2007 02:27	BKG		0.6100	| | |
5-JAN-2007 02:49	BKG		0.6200	| | |
6-JAN-2007 00:45	BKG		0.8300	| | |
6-JAN-2007 18:51	BKG		0.6700	| | |
7-JAN-2007 19:07	BKG		0.6200	| | |
9-JAN-2007 02:20	BKG		0.6000	| | |
10-JAN-2007 02:15	BKG		0.6400	| | |
11-JAN-2007 02:30	BKG		0.5800	| | |
12-JAN-2007 02:37	BKG		0.6300	| | |
13-JAN-2007 02:36	BKG		0.7700	| | |
13-JAN-2007 19:53	BKG		0.6500	| | |
14-JAN-2007 21:00	BKG		0.6400	| | |
16-JAN-2007 02:42	BKG		0.6100	| | |
17-JAN-2007 02:15	BKG		0.6800	| | |
18-JAN-2007 02:53	BKG		0.7900	| | |
19-JAN-2007 02:31	BKG		0.7300	| | |
20-JAN-2007 02:22	BKG		0.7200	| | |
20-JAN-2007 18:57	BKG		0.8000	| | |

21-JAN-2007 19:42	BKG		0.7000	| | |
23-JAN-2007 02:20	BKG		0.6500	| | |
24-JAN-2007 02:52	BKG		0.6200	| | |
25-JAN-2007 02:36	BKG		0.6400	| | |
26-JAN-2007 02:18	BKG		0.8300	| | |
27-JAN-2007 02:10	BKG		0.7300	| | |
27-JAN-2007 20:03	BKG		0.6600	| | |
28-JAN-2007 20:16	BKG		0.6300	| | |
30-JAN-2007 01:35	BKG		0.6300	| | |
31-JAN-2007 03:28	BKG		0.7200	| | |
1-FEB-2007 02:40	BKG		0.7600	| | |
2-FEB-2007 02:33	BKG		0.6700	| | |
3-FEB-2007 02:11	BKG		0.6500	| | |
3-FEB-2007 21:25	BKG		0.6100	| | |
4-FEB-2007 20:05	BKG		0.5900	| | |

-- Multi-Test Full Report --

Description : quad 1c 1" beta bkg, cpm
Parameter Units : cpm Parameter Type : Manual

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.583757 Std Deviation : 0.116615

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 19:25	BKG		0.5800	| | |
3-JAN-2007 04:27	BKG		0.5300	| | |
4-JAN-2007 02:27	BKG		0.5500	| | |
5-JAN-2007 02:49	BKG		0.5700	| | |
6-JAN-2007 00:45	BKG		0.7000	| | |
6-JAN-2007 18:51	BKG		0.5200	| | |

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
7-JAN-2007 19:07	BKG		0.5100	| | |
9-JAN-2007 02:20	BKG		0.5600	| | |
10-JAN-2007 02:15	BKG		0.6200	| | |
11-JAN-2007 02:30	BKG		0.5200	| | |

12-JAN-2007 02:37	BKG	0.5100	| | |
13-JAN-2007 02:36	BKG	1.0100	|Ac| |
13-JAN-2007 19:53	BKG	0.5400	| | |
14-JAN-2007 21:00	BKG	0.5000	| | |
16-JAN-2007 02:42	BKG	0.6000	| | |
17-JAN-2007 02:15	BKG	0.6300	| | |
18-JAN-2007 02:53	BKG	0.6200	| | |
19-JAN-2007 02:31	BKG	0.6700	| | |
20-JAN-2007 02:22	BKG	0.5800	| | |
20-JAN-2007 18:57	BKG	0.6500	| | |
21-JAN-2007 19:42	BKG	0.6200	| | |
23-JAN-2007 02:20	BKG	0.5700	| | |
24-JAN-2007 02:52	BKG	0.5800	| | |
25-JAN-2007 02:36	BKG	0.5500	| | |
26-JAN-2007 02:18	BKG	0.6000	| | |
27-JAN-2007 02:10	BKG	0.5500	| | |
27-JAN-2007 20:03	BKG	0.5900	| | |
28-JAN-2007 20:16	BKG	0.5500	| | |
30-JAN-2007 01:35	BKG	0.5900	| | |
31-JAN-2007 03:28	BKG	0.5900	| | |
1-FEB-2007 02:40	BKG	0.6000	| | |
2-FEB-2007 02:33	BKG	0.6600	| | |
3-FEB-2007 02:11	BKG	0.5300	| | |
3-FEB-2007 21:25	BKG	0.5700	| | |
4-FEB-2007 20:05	BKG	0.5500	| | |

-- Multi-Test Full Report --

Description : quad 1d 1" beta bkg, cpm
Parameter Units : cpm Parameter Type : Manual

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.606455 Std Deviation : 0.089749

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-JAN-2007 19:25	BKG		0.6200	| | |
3-JAN-2007 04:27	BKG		0.5900	| | |
4-JAN-2007 02:27	BKG		0.6300	| | |
5-JAN-2007 02:49	BKG		0.5800	| | |

6-JAN-2007 00:45	BKG		0.7000	| |	
6-JAN-2007 18:51	BKG		0.5600	| |	
7-JAN-2007 19:07	BKG		0.5300	| |	
9-JAN-2007 02:20	BKG		0.5300	| |	
10-JAN-2007 02:15	BKG		0.6000	| |	
11-JAN-2007 02:30	BKG		0.5700	| |	
12-JAN-2007 02:37	BKG		0.5200	| |	
13-JAN-2007 02:36	BKG		0.8300	|In| |	

Quality Assurance Multi-Test Full Report (continued) Page : 4

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
13-JAN-2007 19:53	BKG		0.6100	| | |
14-JAN-2007 21:00	BKG		0.6100	| | |
16-JAN-2007 02:42	BKG		0.6200	| | |
17-JAN-2007 02:15	BKG		0.6700	| | |
18-JAN-2007 02:53	BKG		0.7300	| | |
19-JAN-2007 02:31	BKG		0.7200	| | |
20-JAN-2007 02:22	BKG		0.5900	| | |
20-JAN-2007 18:57	BKG		0.7500	| | |
21-JAN-2007 19:42	BKG		0.6400	| | |
23-JAN-2007 02:20	BKG		0.6400	| | |
24-JAN-2007 02:52	BKG		0.5700	| | |
25-JAN-2007 02:36	BKG		0.6100	| | |
26-JAN-2007 02:18	BKG		0.6400	| | |
27-JAN-2007 02:10	BKG		0.6200	| | |
27-JAN-2007 20:03	BKG		0.6600	| | |
28-JAN-2007 20:16	BKG		0.5800	| | |
30-JAN-2007 01:35	BKG		0.5300	| | |
31-JAN-2007 03:28	BKG		0.6100	| | |
1-FEB-2007 02:40	BKG		0.6400	| | |
2-FEB-2007 02:33	BKG		0.6000	| | |
3-FEB-2007 02:11	BKG		0.6500	| | |
3-FEB-2007 21:25	BKG		0.6800	| | |
4-FEB-2007 20:05	BKG		0.5800	| | |

RADIUM 226

SAMPLE AND QC DATA

SEVERN TRENT STL

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

1/29/2007 11:14:17 AM

Lot No., Due Date: J7A090287,J7A100115,J7A100118; 02/06/2007

Client, Site: 536403; AIR MONITORING Yerington Mine

QC Batch No., Method Test: 7011225; RRA2267 Ra-226 by ASC-7

SDG, Matrix: 33442,33443,33444; FILTER

1.0 COC			
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	Yes ✓	No	N/A
2.0 QC Batch			
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	Yes ✓	No	N/A
2.2 Are the QC appropriate for the analysis included in the batch?	Yes ✓	No	N/A
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	Yes ✓	No	N/A
2.4 Does the Worksheets include a Tracer Vial label for each sample?	Yes ✓	No	N/A
3.0 QC & Samples			
3.1 Is the blank results, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.2 Is the LCS result, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.3 Are the MS/MSD results, yields, and MDA within contract limits?	Yes	No	N/A ✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?	Yes	No	N/A ✓
3.5 Are the sample yields and MDAs within contract limits?	Yes ✓	No	N/A
4.0 Raw Data			
4.1 Were results calculated in the correct units?	Yes ✓	No	N/A
4.2 Were analysis volumes entered correctly?	Yes ✓	No	N/A
4.3 Were Yields entered correctly?	Yes ✓	No	N/A
4.4 Were spectra reviewed/meet contractual requirements?	Yes ✓	No	N/A
4.5 Were raw counts reviewed for anomalies?	Yes ✓	No	N/A
5.0 Other			
5.1 Are all nonconformances included and noted?	Yes	No	N/A ✓
5.2 Are all required forms filled out?	Yes ✓	No	N/A
5.3 Was the correct methodology used?	Yes ✓	No	N/A
5.4 Was transcription checked?	Yes ✓	No	N/A
5.5 Were all calculations checked at a minimum frequency?	Yes ✓	No	N/A
5.6 Are worksheet entries complete and correct?	Yes ✓	No	N/A

6.0 Comments on any No response:

First Level Review Angela Long **Date** 1/29/07

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 7011225

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?			✓
C. Other 1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: Sherry L R Adam Date: 1-29-07

STL RICHLAND

1/16/2007 7:10:47 AM

Sample Preparation/Analysis

Balance Id:1120373922,1120403183

536403, Brown and Caldwell , Brown & Caldwell

BX Ra-226/228 PrpRC5016, SepRC5005
TE Ba-133 by NaI & Ra-226 by Alpha Scint 7 day ingrow
01 STANDARD TEST SET

Pipet #:

AnalyDueDate: 02/05/2007

Sep1 DT/Tm Tech: KL 1/17/07 9:47

Batch: 7011225 FILTER pCi/sampl PM, Quote: SA , 63174

SEQ Batch, Test: 7011229, BXTF All Tests: 7011219 9NS1, 7011221 BAS7, 7011225 BXTE, 7011229 BXTF,

Sep2 DT/Tm Tech:

Prep Tech: WoodT,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 JMK81-1-AC J7A090287-1-SAMP	0.833sa,g	531.15sa,g	150.19g,in	0.2355g 7.4904 = 7.558 .9911	RATA25303 01/03/07	100	05	1241	1/19/07 1/19/07 1505 P 3HA 1/24/07 1100 P	
12/05/2006 12:25		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
2 JMLA1-1-AC J7A090287-2-SAMP	0.833sa,g	502.71sa,g	150.39g,in	0.2492g 7.4904 = 7.588 .9871	RATA25304 01/03/07		04	1242	1/17/07 1/19/07 1505 P 6RA 1/24/07 1053 P	
12/05/2006 12:10		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
3 JMLA4-1-AC J7A090287-3-SAMP	0.833sa,g	516.54sa,g	150.15g,in	0.2421g 7.4809 = 7.903 .9466	RATA25305 01/03/07		07	1242	1/17/07 1/19/07 1505 P GSA 1/24/07 1100 P	
12/05/2006 12:45		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
4 JMLA7-1-AC J7A090287-4-SAMP	0.833sa,g	519.32sa,g	150.24g,in	0.241g 7.5000 = 7.945 .9440	RATA25306 01/03/07		04	1242	1/17/07 1/19/07 1505 P ASC 1/24/07 1101 P	
12/05/2006 12:30		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:

STL RICHLAND

1/16/2007 7:10:50 AM

Sample Preparation/Analysis

Balance Id:1120373922,1120373922,1120

536403, Brown and Caldwell , Brown & Caldwell

BX Ra-226/228 PrpRC5016, SepRC5005
TE Ba-133 by NaI & Ra-226 by Alpha Scint 7 day ingrow
01 STANDARD TEST SET

Pipet #: _____

AnalyDueDate: 02/05/2007

Sep1 DT/Tm Tech:

Batch: 7011225 FILTER pCi/sampl

SEQ Batch, Test: 7011229, BXTF

PM, Quote: SA , 63174

Sep2 DT/Tm Tech:

Prep Tech: WoodT,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
5 JMLA8-1-AC J7A090287-5-SAMP	0.833sa,g	500.78sa,g	150.69g,in	0.2507g 7.4332 – 6.767 1.0984 ✓	RATA25307 01/03/07	100	G8	1042 1/14/07 1505 JMB 1/24/07 1124p	1/17/07 ✓	
12/05/2006 12:50		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
6 JMLT2-1-AC J7A100115-1-SAMP	0.833sa,g	524.49sa,g	150.01g,in	0.2382g 7.4809 – 7.240 1.0333 ✓	RATA25308 01/03/07		G4	1320 1/14/07 1505 KME 1/24/07 1116p	1/17/07 mb	
12/11/2006 11:40		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
7 JMLT6-1-AC J7A100115-2-SAMP	0.833sa,g	532.31sa,g	150.08g,in	0.2349g 7.5095 – 7.114 1.0556 ✓	RATA25309 01/03/07		G7	1320 1/14/07 1530 FMA 1/24/07 1121p	1/17/07mb	
12/11/2006 12:00		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
8 JMLT7-1-AC J7A100115-3-SAMP	0.833sa,g	527.80sa,g	150.17g,in	0.237g 7.5286 – 7.686 .9795 ✓	RATA25310 01/03/07		G6	1320 1/14/07 1530p JHB 1/24/07 1121p	1/17/07 mb	
12/11/2006 12:15		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:

STL RICHLAND

1/16/2007 7:10:51 AM

Sample Preparation/Analysis

Balance Id:1120373922,1120373922,1120

536403, Brown and Caldwell , Brown & Caldwell

BX Ra-226/228 PrpRC5016, SepRC5005
TE Ba-133 by NaI & Ra-226 by Alpha Scint 7 day ingrow
01 STANDARD TEST SET

Pipet #: _____

AnalyDueDate: 02/05/2007

Sep1 DT/Tm Tech:

Batch: 7011225 FILTER pCi/sampl PM, Quote: SA , 63174

SEQ Batch, Test: 7011229, BXTF

Sep2 DT/Tm Tech:

Prep Tech: WoodT,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
9 JMLT8-1-AC J7A100115-4-SAMP	0.833sa,g	503.04sa,g	150.10g,in	0.2486g 7.5572 – 6.368 ✓ 1.1867	RATA25311 01/03/07	10	G8	1321	1/17/07 CKD 1530 P 1/19/07 1505 P 1RH 1/24/07 1156 P	
12/11/2006 11:45		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
10 JMLVA-1-AC J7A100115-5-SAMP	0.833g	511.47g	150.26g,in	0.2447g 7.5190 – 8.383 ✓ .8969	RATA25312 01/03/07		G5	1321	1/17/07 CKD 1530 P 1/19/07 1505 P 2RC 1/24/07 1146 P	
12/11/2006 12:20		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
11 JMLVW-1-AC J7A100118-1-SAMP	0.833g	502.79g	150.23g,in	0.2489g 7.4904 – ~~8.383~~ AC 1/17/07 7.97 ✓ .9398	RATA25313 01/03/07		9"	1321	1/17/07 CKD 1/19/07 1530 P 40A 1/24/07 1149 P	
12/13/2006 12:10		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
12 JMLV3-1-AC J7A100118-2-SAMP	0.833sa,g	507.51sa,g	150.25g,in	0.2466g 7.5095 – 7.57 ✓ .9920	RATA25314 01/03/07		G7	1356	1/17/07 1/19/07 1530 P 8RD 1/24/07 1154 P	
12/13/2006 12:43		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:

STL RICHLAND

1/16/2007 7:10:51 AM

Sample Preparation/Analysis

536403, Brown and Caldwell , Brown & Caldwell

BX Ra-226/228 PrpRC5016, SepRC5005
TE Ba-133 by NaI & Ra-226 by Alpha Scint 7 day ingrow
01 STANDARD TEST SET

Balance Id:1120373922,1120373922,1120

Pipet #:

AnalyDueDate: 02/05/2007

Batch: 7011225 FILTER pCi/sampl
SEQ Batch, Test: 7011229, BXTF

PM, Quote: SA , 63174

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: WoodT,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
13 JMLV5-1-AC J7A100118-3-SAMP	0.833sa,g	510.86sa,g	150.11g,in	0.2448g 7.5000 = 7.046 1.0644 ✓	RATA25315 01/03/07	100	65	1356	1/17/07 1550 P 1/19/07 ~~1530 P~~ LMC 1/24/07 1311 P	
12/13/2006 13:15		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
14 JMLV8-1-AC J7A100118-4-SAMP	0.833sa,g	504.92sa,g	150.22g,in	0.2478g 7.5190 = 6.775 1.1098 ✓	RATA25316 01/03/07		64	1357	1/17/07 1550 P 1/19/07 ~~1530 P~~ 9RA 1/24/07 1304 P	
12/13/2006 13:18		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
15 JMLV9-1-AC J7A100118-5-SAMP	0.833sa,g	511.81sa,g	150.27g,in	0.2446g 7.5286 = 7.465 1.0085 ✓	RATA25317 01/03/07		67	1357	1/17/07 1550 P 1/19/07 ~~1530 P~~ NMA 1/24/07 1309 P	
12/13/2006 13:21		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
16 JMN85-1-AA-B J7A110000-225-BLK			152.17g,in	152.17g 7.4522 = 6.913 1.0780 ✓	RATA25318 01/03/07		66	1357	1/17/07 1550 P 1/19/07 ~~1530 P~~ MRA 1/24/07 1219 P	
12/05/2006 12:25		AmtRec:	#Containers: 1				Scr:	Alpha:		Beta:

STL RICHLAND

1/16/2007 7:10:53 AM

Sample Preparation/Analysis

BX Ra-226/228 PrpRC5016, SepRC5005
TE Ba-133 by NaI & Ra-226 by Alpha Scint 7 day ingrow
01 STANDARD TEST SET

Balance Id:1120373922,1120373922,1120

Pipet #: _____

AnalyDueDate: 02/05/2007

Sep1 DT/Tm Tech:

Batch: 7011225 pCi/sampl
SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: ,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
17 JMN85-1-AC-C J7A110000-225 LCS	—		150.10g,in	150.10g 7.5087 7.835 .9584 ✓	RASC4320 11/22/06	100	68	1357 1/19/07 1550 P QMB QMB P 1/24/07 1320 P	1/17/07	

12/05/2006 12:25 AmtRec: #Containers: 1 Scr: Alpha: Beta:

Comments:

All Clients for Batch:
536403, Brown and Caldwell Brown & Caldwell , SA , 63174

JMK811AC-SAMP Constituent List:
Ba-133 RDL: pCi/sam LCL:20 UCL:115 RPD:20 Ra-226 RDL:1.00E+00 pCi/sam LCL: UCL: RPD:

JMN851AA-BLK:
Ba-133 RDL: pCi/sam LCL:20 UCL:115 RPD:20 Ra-226 RDL:1.00E+00 pCi/sam LCL: UCL: RPD:

JMN851AC-LCS:
Ba-133 RDL: pCi/sam LCL:20 UCL:115 RPD:20 Ra-226 RDL:1 pCi/sam LCL:70 UCL:130 RPD:20

JMK811AC-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JMN851AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JMN851AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

Approved By _____ Date: _____

1/29/2007 11:13:44 AM

ICOC Fraction Transfer/Status Report

ByDate: 1/29/2006, 2/3/2007, Batch: '7011225', User: *ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting			Comments
	7011225						
AC			CalcC	WoodT	1/15/2007 12:31:12		
SC				wagarr	IsBatched	1/11/2007 11:25:28 AM	ICOC_RADCALC v4.8.26
SC				WoodT	Prep1C	1/15/2007 12:31:12 PM	RICH-RC-5016 REVISION 5
SC				HarrisonJ	InPrep	1/16/2007 6:49:39 AM	RICH-RC-5005 Revision 5
SC				LongA	Sep1C	1/17/2007 9:56:55 AM	RICH-RC-5005 REVISION 5
SC				BlackCL	InCnt1	1/17/2007 10:47:29 AM	RICH-RD-0007 REVISION 5
SC				DAWKINSO	Cnt1C	1/17/2007 2:39:44 PM	RICH-RD-0007 REVISION 5
SC				PetersonJ	InSep2	1/19/2007 4:09:31 PM	RICH-RC-5005 REVISION 5
SC				PetersonJ	CalcC	1/25/2007 7:52:36 AM	RICH-RC-5005 REVISION 5
AC				HarrisonJ	1/16/2007 6:49:39		
AC				LongA	1/17/2007 9:56:55		
AC				BlackCL	1/17/2007 10:47:29		
AC				DAWKINSO	1/17/2007 2:39:44 PM		
AC				PetersonJ	1/19/2007 4:09:31 PM		
AC				PetersonJ	1/25/2007 7:52:36		

AC: Accepting Entry; SC: Status Change

1/29/2007 11:13:43 AM

Rpt DB Transfer log (Batch Results)

SDG or Batch / Isotope	Rpt Db Id / Method	RTst	Qc	LotSample / Analysis Date	Client Id / Result	Matrix / Cnt Uncert	Received Date / Tot uncert	MDA	Sample Date / Units	Expected	Yield	Volumes
33442	**9JMK8110**			**J7A0902871**	P-0812	FILTER	1/8/2007 10:00:00		12/5/2006 12:25:00 PM			
ALPHA	BAS7	0		1/23/2007 7:52:27 PM	**7.3565E+00**	1.942E+00	2.126E+00	5.371E+00	PCI/SA	1.0	1.0E+0	1.971E-2
RA-226	BXTE	0		1/24/2007 2:00:00 PM	**-1.8572E-02**	2.11E-01	2.11E-01	8.045E-01	PCI/SA	1.009	1.0E+0	2.355E-1
TH-228	9NS1	0		1/17/2007 10:03:53 PM	**3.9481E-06**	8.376E-02	8.376E-02	4.25E-01	PCI/SA	0.953	1.0E+0	7.881E-2
TH-230	9NS1	0		1/17/2007 10:03:53 PM	**3.0258E-01**	1.086E-01	1.116E-01	2.269E-01	PCI/SA	0.953	1.0E+0	7.881E-2
TH-232	9NS1	0		1/17/2007 10:03:53 PM	**-3.7821E-02**	4.632E-02	4.643E-02	2.784E-01	PCI/SA	0.953	1.0E+0	7.881E-2
33442	**9JMLA110**			**J7A0902872**	P-0813	FILTER	1/8/2007 10:00:00		12/5/2006 12:10:00 PM			
ALPHA	BAS7	0		1/23/2007 7:52:27 PM	**5.0205E+00**	1.488E+00	1.593E+00	3.811E+00	PCI/SA	1.0	1.0E+0	2.076E-2
RA-226	BXTE	0		1/24/2007 1:53:00 PM	**2.6875E-01**	2.135E-01	2.152E-01	7.447E-01	PCI/SA	1.013	1.0E+0	2.492E-1
TH-228	9NS1	0		1/17/2007 10:04:06 PM	**7.7868E-02**	1.828E-01	1.829E-01	8.388E-01	PCI/SA	0.438	1.0E+0	8.298E-2
TH-230	9NS1	0		1/17/2007 10:04:06 PM	**2.2391E-01**	1.346E-01	1.362E-01	4.477E-01	PCI/SA	0.438	1.0E+0	8.298E-2
TH-232	9NS1	0		1/17/2007 10:04:06 PM	**0.0E+00**	0.0E+00	8.345E-02	4.477E-01	PCI/SA	0.438	1.0E+0	8.298E-2
33442	**9JMLA410**			**J7A0902873**	P-0814	FILTER	1/8/2007 10:00:00		12/5/2006 12:45:00 PM			
ALPHA	BAS7	0		1/23/2007 7:52:27 PM	**1.021E+01**	2.124E+00	2.428E+00	5.17E+00	PCI/SA	1.0	1.0E+0	2.024E-2
RA-226	BXTE	0		1/24/2007 2:00:00 PM	**-2.0119E-01**	1.475E-01	1.489E-01	6.547E-01	PCI/SA	1.056	1.0E+0	2.421E-1
TH-228	9NS1	0		1/17/2007 10:04:25 PM	**1.8576E-01**	1.273E-01	1.283E-01	4.461E-01	PCI/SA	0.833	1.0E+0	8.115E-2
TH-230	9NS1	0		1/17/2007 10:04:25 PM	**1.271E-01**	9.165E-02	9.234E-02	3.05E-01	PCI/SA	0.833	1.0E+0	8.115E-2
TH-232	9NS1	0		1/17/2007 10:04:25 PM	**-2.5423E-02**	5.684E-02	5.689E-02	3.05E-01	PCI/SA	0.833	1.0E+0	8.115E-2
33442	**9JMLA710**			**J7A0902874**	P-0815	FILTER	1/8/2007 10:00:00		12/5/2006 12:30:00 PM			
ALPHA	BAS7	0		1/23/2007 7:52:27 PM	**8.5202E+00**	1.921E+00	2.163E+00	4.521E+00	PCI/SA	1.0	1.0E+0	2.008E-2
RA-226	BXTE	0		1/24/2007 2:01:01 PM	**4.2187E-01**	1.722E-01	1.783E-01	5.027E-01	PCI/SA	1.059	1.0E+0	2.41E-1
TH-228	9NS1	0		1/17/2007 10:04:10 PM	**1.636E-01**	8.016E-02	8.133E-02	2.01E-01	PCI/SA	0.996	1.0E+0	8.039E-2
TH-230	9NS1	0		1/17/2007 10:04:10 PM	**9.5387E-02**	5.94E-02	5.994E-02	1.632E-01	PCI/SA	0.996	1.0E+0	8.039E-2
TH-232	9NS1	0		1/17/2007 10:04:10 PM	**2.044E-02**	3.54E-02	3.544E-02	1.925E-01	PCI/SA	0.996	1.0E+0	8.039E-2
33442	**9JMLA810**			**J7A0902875**	000580	FILTER	1/8/2007 10:00:00		12/5/2006 12:50:00 PM			
ALPHA	BAS7	0		1/23/2007 7:52:27 PM	**1.2459E+01**	2.199E+00	2.634E+00	4.493E+00	PCI/SA	1.0	1.0E+0	2.094E-2
RA-226	BXTE	0		1/24/2007 2:24:00 PM	**5.1999E-01**	1.387E-01	1.49E-01	3.12E-01	PCI/SA	0.91	1.0E+0	2.507E-1
TH-228	9NS1	0		1/17/2007 10:04:38 PM	**1.1513E-01**	7.339E-02	7.403E-02	2.472E-01	PCI/SA	0.893	1.0E+0	8.345E-2
TH-230	9NS1	0		1/17/2007 10:04:38 PM	**3.6534E-01**	1.147E-01	1.188E-01	1.948E-01	PCI/SA	0.893	1.0E+0	8.345E-2
TH-232	9NS1	0		1/17/2007 10:04:38 PM	**2.757E-02**	3.515E-02	3.523E-02	1.651E-01	PCI/SA	0.893	1.0E+0	8.345E-2
33443	**9JMLT210**			**J7A1001151**	P-0816	FILTER	1/8/2007 10:00:00		12/11/2006 11:40:00 AM			
ALPHA	BAS7	0		1/24/2007 11:27:16	**2.4671E+01**	3.073E+00	4.223E+00	4.533E+00	PCI/SA	1.0	1.0E+0	1.967E-2
RA-226	BXTE	0		1/24/2007 2:16:00 PM	**1.7788E-02**	1.722E-01	1.722E-01	6.813E-01	PCI/SA	0.968	1.0E+0	2.382E-1
TH-228	9NS1	0		1/17/2007 10:04:53 PM	**6.9525E-02**	8.978E-02	8.998E-02	3.897E-01	PCI/SA	1.034	1.0E+0	7.981E-2
TH-230	9NS1	0		1/17/2007 10:04:53 PM	**1.7867E-01**	9.209E-02	9.337E-02	2.679E-01	PCI/SA	1.034	1.0E+0	7.981E-2
TH-232	9NS1	0		1/17/2007 10:04:53 PM	**4.4668E-02**	4.994E-02	5.009E-02	2.679E-01	PCI/SA	1.034	1.0E+0	7.981E-2
33443	**9JMLT610**			**J7A1001152**	P-0817	FILTER	1/8/2007 10:00:00		12/11/2006 12:00:00 PM			
ALPHA	BAS7	0		1/24/2007 11:27:16	**1.7047E+01**	2.595E+00	3.236E+00	4.148E+00	PCI/SA	1.0	1.0E+0	1.972E-2
RA-226	BXTE	0		1/24/2007 2:21:00 PM	**1.9821E-01**	1.103E-01	1.122E-01	3.539E-01	PCI/SA	0.947	1.0E+0	2.349E-1
TH-228	9NS1	0		1/17/2007 10:05:00 PM	**3.2653E-01**	1.361E-01	1.391E-01	3.264E-01	PCI/SA	0.925	1.0E+0	7.84E-2
TH-230	9NS1	0		1/17/2007 10:05:00 PM	**3.1463E-01**	1.311E-01	1.34E-01	3.145E-01	PCI/SA	0.925	1.0E+0	7.84E-2
TH-232	9NS1	0		1/17/2007 10:05:00 PM	**0.0E+00**	0.0E+00	5.863E-02	3.145E-01	PCI/SA	0.925	1.0E+0	7.84E-2
33443	**9JMLT710**			**J7A1001153**	P-0818	FILTER	1/8/2007 10:00:00		12/11/2006 12:15:00 PM			
ALPHA	BAS7	0		1/24/2007 11:27:16	**2.0458E+01**	2.807E+00	3.665E+00	4.808E+00	PCI/SA	1.0	1.0E+0	1.987E-2
RA-226	BXTE	0		1/24/2007 2:21:00 PM	**1.2927E+00**	3.086E-01	3.34E-01	9.176E-01	PCI/SA	1.021	1.0E+0	2.37E-1
TH-228	9NS1	0		1/17/2007 10:06:45 PM	**1.0138E-01**	8.838E-02	8.88E-02	3.408E-01	PCI/SA	1.003	1.0E+0	7.935E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	**1.9537E-02**	4.368E-02	4.372E-02	2.344E-01	PCI/SA	1.003	1.0E+0	7.935E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	**-1.9536E-02**	4.368E-02	4.372E-02	2.344E-01	PCI/SA	1.003	1.0E+0	7.935E-2
33443	**9JMLT810**			**J7A1001154**	P-0819	FILTER	1/8/2007 10:00:00		12/11/2006 11:45:00 AM			
ALPHA	BAS7	0		1/24/2007 11:27:16	**1.0219E+00**	9.422E-01	9.498E-01	3.921E+00	PCI/SA	1.0	1.0E+0	2.078E-2
RA-226	BXTE	0		1/24/2007 2:56:00 PM	**5.1854E-01**	2.588E-01	2.642E-01	8.595E-01	PCI/SA	0.843	1.0E+0	2.486E-1
TH-228	9NS1	0		1/17/2007 10:06:45 PM	**5.0395E-02**	7.968E-02	7.98E-02	3.709E-01	PCI/SA	0.746	1.0E+0	8.314E-2

7011225, **Samples Inserted | Updated | NotUpdated => 2 | 0 | 15,
**Results Inserted | ReTestInserted | Updated | NotInserted => 17 | 0 | 0 | 0.
**Diff RptDb | Qtims => .

SDG or Batch / Isotope	Rpt Db Id / Method	RTst	Qc	LotSample / Analysis Date	Client Id / Result	Matrix / Cnt Uncert	Received Date / Tot Uncert	MDA	Sample Date / Units	Expected	Yield	Volumes
TH-230	9NS1	0		1/17/2007 10:06:45 PM	**9.7115E-02**	9.084E-02	9.125E-02	3.574E-01	PCI/SA	0.746	1.0E+0	8.314E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	**-2.4278E-02**	5.429E-02	5.433E-02	2.912E-01	PCI/SA	0.746	1.0E+0	8.314E-2
33444	**9JMLV310**			**J7A1001182**	P-0821	FILTER	1/8/2007 10:00:00		12/13/2006 12:43:00 PM			
ALPHA	BAS7	0		1/24/2007 2:12:29 PM	**6.7087E+00**	1.697E+00	1.86E+00	3.988E+00	PCI/SA	1.0	1.0E+0	2.057E-2
RA-226	BXTE	0		1/24/2007 2:54:00 PM	**3.1557E-01**	1.534E-01	1.566E-01	4.799E-01	PCI/SA	1.008	1.0E+0	2.466E-1
TH-228	9NS1	0		1/17/2007 10:06:45 PM	**2.1713E-01**	9.95E-02	1.013E-01	2.605E-01	PCI/SA	0.883	1.0E+0	8.297E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	**1.4675E-01**	8.644E-02	8.737E-02	2.515E-01	PCI/SA	0.883	1.0E+0	8.297E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	**1.2578E-01**	7.559E-02	7.637E-02	2.515E-01	PCI/SA	0.883	1.0E+0	8.297E-2
33444	**9JMLV510**			**J7A1001183**	P-0822	FILTER	1/8/2007 10:00:00		12/13/2006 1:15:00 PM			
ALPHA	BAS7	0		1/24/2007 2:12:29 PM	**5.6103E+00**	1.643E+00	1.766E+00	4.653E+00	PCI/SA	1.0	1.0E+0	2.053E-2
RA-226	BXTE	0		1/24/2007 4:11:00 PM	**9.3611E-02**	1.635E-01	1.638E-01	6.092E-01	PCI/SA	0.939	1.0E+0	2.448E-1
TH-228	9NS1	0		1/17/2007 10:06:45 PM	**-4.4948E-02**	6.357E-02	6.369E-02	4.174E-01	PCI/SA	0.869	1.0E+0	8.203E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	**3.472E-01**	1.247E-01	1.283E-01	2.603E-01	PCI/SA	0.869	1.0E+0	8.203E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	**0.0E+00**	0.0E+00	4.852E-02	2.603E-01	PCI/SA	0.869	1.0E+0	8.203E-2
33444	**9JMLV810**			**J7A1001184**	P-0824	FILTER	1/8/2007 10:00:00		12/13/2006 1:18:00 PM			
ALPHA	BAS7	0		1/24/2007 2:12:29 PM	**3.332E-02**	7.576E-01	7.576E-01	3.963E+00	PCI/SA	1.0	1.0E+0	2.066E-2
RA-226	BXTE	0		1/24/2007 4:04:00 PM	**2.912E-01**	1.92E-01	1.944E-01	6.561E-01	PCI/SA	0.901	1.0E+0	2.478E-1
TH-228	9NS1	0		1/17/2007 10:06:45 PM	**0.0E+00**	0.0E+00	8.769E-02	4.705E-01	PCI/SA	0.55	1.0E+0	8.28E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	**1.136E-01**	1.136E-01	1.141E-01	4.542E-01	PCI/SA	0.55	1.0E+0	8.28E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	**1.136E-01**	1.136E-01	1.141E-01	4.542E-01	PCI/SA	0.55	1.0E+0	8.28E-2
33444	**9JMLV910**			**J7A1001185**	P-0582	FILTER	1/8/2007 10:00:00		12/13/2006 1:21:00 PM			
ALPHA	BAS7	0		1/24/2007 2:12:29 PM	**4.1991E+00**	1.476E+00	1.555E+00	4.504E+00	PCI/SA	1.0	1.0E+0	2.041E-2
RA-226	BXTE	0		1/24/2007 4:09:00 PM	**1.5627E-01**	1.511E-01	1.52E-01	5.415E-01	PCI/SA	0.992	1.0E+0	2.446E-1
TH-228	9NS1	0		1/17/2007 10:06:45 PM	**8.0735E-02**	6.055E-02	6.094E-02	2.421E-01	PCI/SA	0.905	1.0E+0	8.161E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	**3.5078E-01**	1.185E-01	1.223E-01	2.338E-01	PCI/SA	0.905	1.0E+0	8.161E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	**0.0E+00**	0.0E+00	4.358E-02	2.338E-01	PCI/SA	0.905	1.0E+0	8.161E-2
33443	**9JMLVA10**			**J7A1001155**	000581	FILTER	1/8/2007 10:00:00		12/11/2006 12:20:00 PM			
ALPHA	BAS7	0		1/24/2007 11:27:16	**2.6821E+01**	3.115E+00	4.452E+00	4.498E+00	PCI/SA	1.0	1.0E+0	2.05E-2
RA-226	BXTE	0		1/24/2007 2:46:00 PM	**3.0858E-02**	1.647E-01	1.648E-01	6.393E-01	PCI/SA	1.115	1.0E+0	2.447E-1
TH-228	9NS1	0		1/17/2007 10:06:45 PM	**2.3414E-01**	1.352E-01	1.369E-01	4.373E-01	PCI/SA	0.864	1.0E+0	8.202E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	**2.5068E-01**	1.149E-01	1.171E-01	3.007E-01	PCI/SA	0.864	1.0E+0	8.202E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	**1.5041E-01**	9.038E-02	9.143E-02	3.007E-01	PCI/SA	0.864	1.0E+0	8.202E-2
33444	**9JMLVW10**			**J7A1001181**	P-0820	FILTER	1/8/2007 10:00:00		12/13/2006 12:10:00 PM			
ALPHA	BAS7	0		1/24/2007 2:12:29 PM	**4.4092E+00**	1.473E+00	1.564E+00	4.308E+00	PCI/SA	1.0	1.0E+0	2.084E-2
RA-226	BXTE	0		1/24/2007 2:49:00 PM	**2.1515E-01**	1.582E-01	1.597E-01	5.494E-01	PCI/SA	1.064	1.0E+0	2.489E-1
TH-228	9NS1	0		1/17/2007 10:06:45 PM	**8.4482E-02**	8.448E-02	8.484E-02	3.378E-01	PCI/SA	0.801	1.0E+0	8.348E-2
TH-230	9NS1	0		1/17/2007 10:06:45 PM	**2.447E-01**	1.246E-01	1.266E-01	3.262E-01	PCI/SA	0.801	1.0E+0	8.348E-2
TH-232	9NS1	0		1/17/2007 10:06:45 PM	**5.4377E-02**	6.079E-02	6.1E-02	3.262E-01	PCI/SA	0.801	1.0E+0	8.348E-2
33442	**JMN851AB**			**J7A110000225**	INTRA-LAB BLANK	FILTER	1/8/2007 10:00:00		12/5/2006 12:25:00 PM			
RA-226	BXTE	0	B	1/24/2007 4:19:00 PM	**1.8647E-04**	2.203E-04	2.212E-04	8.118E-04	PCI/SA	0.928	1.0E+0	1.522E+2
33442	**JMN851CS**			**J7A110000225**	INTRA-LAB CHECK	FILTER	1/8/2007 10:00:00		12/5/2006 12:25:00 PM			
RA-226	BXTE	0	S	1/24/2007 4:20:00 PM	**7.278E-03**	5.529E-04	9.375E-04	5.242E-04	PCI/SA	9.188E-03 1.043	1.0E+0	1.501E+2

7011225, **Samples Inserted | Updated | NotUpdated => 2 | 0 | 15,
**Results Inserted | ReTestInserted | Updated | NotInserted => 17 | 0 | 0 | 0.
**Diff RptDb | Qtims => .

Batch Nbr: 7011225

Alpha Beta, Ra-226 by ASC-7 , Results

1/25/2007 7:49:04 AM

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYld
Ra-226 by ASC-7				Richland Standard Ra-226/Ra-228 Deem Wo Blk Subt.										
Calc	TE	FILTER	**JMK811AC**	RA-226	**-1.86E-02**	**(2.11E-01)**	**U4**	PCI/SA	R	3.65E-01	8.04E-01		101%	
Calc	TE	FILTER	**JMLA11AC**	RA-226	**2.69E-01**	**(2.15E-01)**	**U4**	PCI/SA	R	3.38E-01	7.45E-01		101%	
Calc	TE	FILTER	**JMLA41AC**	RA-226	**-2.01E-01**	**(1.49E-01)**	**U4**	PCI/SA	R	2.87E-01	6.55E-01		106%	
Calc	TE	FILTER	**JMLA71AC**	RA-226	**4.22E-01**	**(1.78E-01)**		PCI/SA	R	2.00E-01	5.03E-01		106%	
Calc	TE	FILTER	**JMLA81AC**	RA-226	**5.20E-01**	**(1.49E-01)**		PCI/SA	R	1.18E-01	3.12E-01		91%	
Calc	TE	FILTER	**JMLT21AC**	RA-226	**1.78E-02**	**(1.72E-01)**	**U4**	PCI/SA	R	2.93E-01	6.81E-01		97%	
Calc	TE	FILTER	**JMLT61AC**	RA-226	**1.98E-01**	**(1.12E-01)**		PCI/SA	R	1.38E-01	3.54E-01		95%	
Calc	TE	FILTER	**JMLT71AC**	RA-226	**1.29E+00**	**(3.34E-01)**		PCI/SA	R	4.23E-01	9.18E-01		102%	
Calc	TE	FILTER	**JMLT81AC**	RA-226	**5.19E-01**	**(2.64E-01)**		PCI/SA	R	3.89E-01	8.60E-01		84%	
Calc	TE	FILTER	**JMLVA1AC**	RA-226	**3.09E-02**	**(1.65E-01)**	**U4**	PCI/SA	R	2.78E-01	6.39E-01		111%	
Calc	TE	FILTER	**JMLVW1AC**	RA-226	**2.15E-01**	**(1.60E-01)**	**U4**	PCI/SA	R	2.36E-01	5.49E-01		106%	
Calc	TE	FILTER	**JMLV31AC**	RA-226	**3.16E-01**	**(1.57E-01)**		PCI/SA	R	1.93E-01	4.80E-01		101%	
Calc	TE	FILTER	**JMLV51AC**	RA-226	**9.36E-02**	**(1.64E-01)**	**U4**	PCI/SA	R	2.67E-01	6.09E-01		94%	
Calc	TE	FILTER	**JMLV81AC**	RA-226	**2.91E-01**	**(1.94E-01)**	**U4**	PCI/SA	R	2.82E-01	6.56E-01		90%	
Calc	TE	FILTER	**JMLV91AC**	RA-226	**1.56E-01**	**(1.52E-01)**	**U4**	PCI/SA	R	2.35E-01	5.41E-01		99%	
Calc	TE	FILTER	**JMN851AA**	RA-226	**1.86E-04**	**(2.21E-04)**	**U4**	PCI/SA	R	3.43E-04	8.12E-04	**B**	93%	
Calc	TE	FILTER	**JMN851AC**	RA-226	**7.28E-03**	**(9.38E-04)**		PCI/SA	R	2.08E-04	5.24E-04	**S**	104%	79%

Angela Long
1/26/07

P Cureton
1-29-07

() - (1s Uncertainities)
IDC - Instrument Detection Level in Conc Units
MLcC- Method Decision Level in Conc Units
MDC - Minimum Detectable Concentration
*Std - Lc, MDC using StdDev for Set of Blanks

Q - Qualifier, U is Less Than Lc = 1.645*TPU
All Results Displayed to Three Digits Reguardless of Significants
Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:17
RADCALC v4.8.26
STL Richland

STL RICHLAND

Batch Nbr: 7011225

Alpha Beta, Ra-226 by ASC-7 , Calculated Results

Detailed Report

1/25/2007 7:49:04 AM

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
1	Calc	TE	FILTER	*STLE	Ra226WoBS	JMK811AC	PCI/SA		12/05/06 12:25	01/24/07 14:00	01/19/07 15:05	RATA25303	1	1.00 SA	
CID:P-0812L	LOT:J7A0902871 v4.8.26						FILTER				01/24/07 11:00	RATA25303 Alq	101%	0.235542 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
1	01/24/07 14:00	RA-226	31	38	ASC3HA	ASC		N	2.4113E+00	1.0000E+00	N	101%	N		1.7562E+00	4.5045E-01	1.0001E+00	
			50	60			Y		(4.316E-02)	(0.000E+00)		8%			(0.000E+00)	4.245523		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/25/07	RA-226	R	**-0.018572**	U4	-1.33333E-02	-0.009711	-0.009711	1.00 SA	101%		0.804465		
				(0.21105)		(1.5151E-01)	(0.110352)	(0.110352)	(0.014142)			0.364701		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
2	Calc	TE	FILTER	*STLE	Ra226WoBS	JMLA11AC	PCI/SA		12/05/06 12:10	01/24/07 13:53	01/19/07 15:05	RATA25304	1	1.00 SA	
CID:P-0813L	LOT:J7A0902872 v4.8.26						FILTER				01/24/07 10:53	RATA25304 Alq	101%	0.249199 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
1	01/24/07 13:53	RA-226	44	40	ASC6RA	ASC		N	2.5216E+00	1.0000E+00	N	101%	N		1.7573E+00	4.5045E-01	1.0001E+00	
			50	60			Y		(8.674E-02)	(0.000E+00)		8%			(0.000E+00)	4.012856		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/25/07	RA-226	R	**0.268754**	U4	2.13333E-01	0.148673	0.148673	1.00 SA	101%		0.744704		
				(0.215195)		(1.6944E-01)	(0.118794)	(0.118794)	(0.014142)			0.338413		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
3	Calc	TE	FILTER	*STLE	Ra226WoBS	JMLA41AC	PCI/SA		12/05/06 12:45	01/24/07 14:00	01/19/07 15:05	RATA25305	1	1.00 SA	
CID:P-0814L	LOT:J7A0902873 v4.8.26						FILTER				01/24/07 11:00	RATA25305 Alq	106%	0.24214 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
1	01/24/07 14:00	RA-226	10	20	ASCGSA	ASC		N	2.1653E+00	1.0000E+00	N	106%	N		1.7562E+00	4.5045E-01	1.0001E+00	
			50	60			Y		(7.622E-02)	(0.000E+00)		8%			(0.000E+00)	4.129844		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/25/07	RA-226	R	**-0.201188**	U4	-1.33333E-01	-0.108143	-0.108143	1.00 SA	106%		0.654673		
				(0.148912)		(9.7753E-02)	(0.079846)	(0.079846)	(0.014142)			0.286615		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
4	Calc	TE	FILTER	*STLE	Ra226WoBS	JMLA71AC	PCI/SA		12/05/06 12:30	01/24/07 14:01	01/19/07 15:05	RATA25306	1	1.00 SA	
CID:P-0815L	LOT:J7A0902874 v4.8.26						FILTER				01/24/07 11:01	RATA25306 Alq	106%	0.240988 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
1	01/24/07 14:01	RA-226	16	6	ASCASC	ASC		N	1.7118E+00	1.0000E+00	N	106%	N		1.7560E+00	4.5045E-01	1.0001E+00	
			50	60			Y		(9.244E-02)	(0.000E+00)		8%			(0.000E+00)	4.149583		

() - (1s Uncertainities), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU

RecCnt:4

RADCALC v4.8.26

STL Richland

IDC - Instrument Detection Level in Conc Units, MLcC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration

Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significants, Date/Time - mm/dd/yy hh:mm, 24hr Time

STL RICHLAND

Batch Nbr: 7011225

Alpha Beta, Ra-226 by ASC-7 , Calculated Results

1/25/2007 7:49:05 AM

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/25/07	RA-226	R	**0.421865**		2.20000E-01	0.225683	0.225683	1.00 SA	106%		0.502699		
				(0.178326)		(8.9815E-02)	(0.094675)	(0.094675)	(0.014142)			0.199502		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
5	Calc	TE	FILTER	*STLE	Ra226WoBS	**JMLA81AC**	**PCI/SA**		12/05/06 12:50	01/24/07 14:24	01/19/07 15:05	RATA25307	1	1.00 SA	
CID:000580LOT:J7A0902875 v4 8.26							FILTER				01/24/07 11:24	RATA25307 Alq	91%	0.250659 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
1	01/24/07 14:24	RA-226	22	4	ASCJMB	ASC		N	2.4836E+00	1.0000E+00	N	91%	N		1.7524E+00	4.5045E-01	1.0001E+00	
			50	60			Y		(1.095E-01)	(0.000E+00)		7%			(0.000E+00)	3.989491		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/25/07	RA-226	R	**0.519991**		3.73333E-01	0.28934	0.28934	1.00 SA	91%		0.311986		
				(0.149043)		(9.9555E-02)	(0.081558)	(0.081558)	(0.014142)			0.118318		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
6	Calc	TE	FILTER	*STLE	Ra226WoBS	**JMLT21AC**	**PCI/SA**		12/11/06 11:40	01/24/07 14:16	01/19/07 15:05	RATA25308	1	1.00 SA	
CID:P-0816LOT:J7A1001151 v4.8.26							FILTER				01/24/07 11:16	RATA25308 Alq	97%	0.238247 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
1	01/24/07 14:16	RA-226	13	15	ASCKME	ASC		N	1.9262E+00	1.0000E+00	N	97%	N		1.7537E+00	4.5045E-01	1.0000E+00	
			50	60			Y		(2.562E-02)	(0.000E+00)		8%			(0.000E+00)	4.197319		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/25/07	RA-226	R	**0.017788**	U4	1.00000E-02	0.009408	0.009408	1.00 SA	97%		0.681277		
				(0.172161)		(9.6782E-02)	(0.091052)	(0.091052)	(0.014142)			0.292608		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
7	Calc	TE	FILTER	*STLE	Ra226WoBS	**JMLT61AC**	**PCI/SA**		12/11/06 12:00	01/24/07 14:21	01/19/07 15:30	RATA25309	1	1.00 SA	
CID:P-0817LOT:J7A1001152 v4.8.26							FILTER				01/24/07 11:21	RATA25309 Alq	95%	0.234857 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
1	01/24/07 14:21	RA-226	11	5	ASCPMA	ASC		N	2.4525E+00	1.0000E+00	N	95%	N		1.7568E+00	4.5045E-01	1.0000E+00	
			50	60			Y		(8.241E-02)	(0.000E+00)		8%			(0.000E+00)	4.257913		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdC/LcC
	01/25/07	RA-226	R	**0.198214**		1.36667E-01	0.10334	0.10334	1.00 SA	95%		0.353936		
				(0.112155)		(7.6085E-02)	(0.058226)	(0.058226)	(0.014142)			0.137745		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
8	Calc	TE	FILTER	*STLE	Ra226WoBS	**JMLT71AC**	**PCI/SA**		12/11/06 12:15	01/24/07 14:21	01/19/07 15:30	RATA25310	1	1.00 SA	
CID:P-0818LOT:J7A1001153 v4.8.26							FILTER				01/24/07 11:21	RATA25310 Alq	102%	0.237006 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn

() - (1s Uncertainities), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU

IDC - Instrument Detection Level in Conc Units, MLcC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration

Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significants, Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:8

RADCALC v4.8.26

STL Richland

Batch Nbr: 7011225

Alpha Beta, Ra-226 by ASC-7 , Calculated Results

1/25/2007 7:49:05 AM

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	01/25/07	RA-226	R	**0.156273**	U4	1.16667E-01	0.084845	0.084845	1.00 SA	99%		0.541472		
				(0.151995)		(1.1279E-01)	(0.082405)	(0.082405)	(0.014142)			0.234575		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
16	Calc	TE	FILTER	*STLE	Ra226WoBS	JMN851AA	PCI/SA	B	12/05/06 12:25	01/24/07 16:19	01/19/07 15:50	RATA25318	1	1.00 SA	
CID:INTRA-LAB BLANK LOT:J7A110000225 v4.8.26							FILTER				01/24/07 13:19	RATA25318 Alq	93%	152.17 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
1	01/24/07 16:19	RA-226	14	12	ASCMRA	ASC		N	2.3844E+00	1.0000E+00	N	93%	N		1.7415E+00	4.5045E-01	1.0001E+00	
			50	60	(21)		Y		(1.044E-01)	(0.000E+00)		7%			(0.000E+00)	0.006572		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	01/25/07	RA-226	R	**0.000186**	U4	8.00000E-02	0.062989	0.062989	1.00 SA	93%		0.000812		
				(0.000221)		(9.4516E-02)	(0.07464)	(0.07464)	(0.014142)			0.000343		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
17	Calc	TE	FILTER	*STLE	Ra226WoBS	JMN851AC	PCI/SA	S	12/05/06 12:25	01/24/07 16:20	01/19/07 15:50	RASC4320	1	1.00 SA	
CID:INTRA-LAB CHECK LOT:J7A110000225 v4.8.26							FILTER				01/24/07 13:20	RASC4320 Alq	104%	150.10 SA	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
1	01/24/07 16:20	RA-226	187	6	ASCQMB	ASC		N	2.6138E+00	1.0000E+00	N	104%	N		1.7414E+00	4.5045E-01	1.0001E+00	
			50	60	(24)		Y		(1.085E-01)	(0.000E+00)		8%			(0.000E+00)	0.006662		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	01/25/07	RA-226	R	**0.007278**		3.64000E+00	2.42505	2.42505	1.00 SA	104%	79%	0.000524		
				(0.000938)		(2.7653E-01)	(0.285842)	(0.285842)	(0.014142)			0.000208		

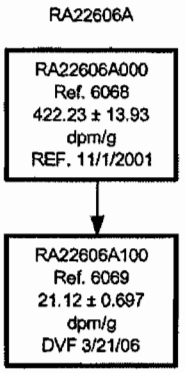
() - (1s Uncertainities), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
IDC - Instrument Detection Level in Conc Units, MLcC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration
Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significants, Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:17

RADCALC v4.8.26
STL Richland

RADIUM 226

STANDARDS AND TRACEABILITY


RA22606A
RA22606A000
Ref. 6068
422.23 ± 13.93
dpm/g
REF. 11/1/2001
RA22606A100
Ref. 6069
21.12 ± 0.697
dpm/g
DVF 3/21/06

ISOTOPE DILUTION RECORD

1) Prepared by	tda	2) Date Prepared	10/14/2005
3) Source Identification Number / Ref. Number	***RA22606A000***		***6068***
4) Source Activity (dpm ± dpm/g)	4.2223E+02	±	1.393E+01
5) Percent error of Source Activity	3.3 %		
6) Weight of Source Material used (g)	50		
7) (% Error) of Weight of Source Material used	0.0096 %		
8) Diluent	1 M HNO3		
9) Total Weight of the Dilution (g)	approx. 750 g		
10) (% Error) of Total Weight of the Dilution	0.0400 %		
11) Specific Activity of Diluted Solution dpm/g	***2.1120E+01***	±	***6.970E-01***
12) Total Uncertainty	3.300 %		
13) Dilution Identification Number / Ref. Number	***RA22606A100***		***6069***
14) Calibration Reference Date	11/1/2001		
15) Isotope Inventory File update by/date	tda		3/21/2006
16) Reviewed by/date			
17) Location	QCLAB	18) Exhausted	

****

CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = $\sqrt{(\%\ \text{error of Source Activity}^2 + \%\ \text{error of Wt. Used}^2 + \%\ \text{error of Dilution Wt.}^2)}$

Form: CC-006, 7/15/99, Rev 3

ISOTOPE RECORD FORM

1) Isotope: Ra-226 2) Reference Number: 6068

3) Half Life: 1600 yrs. 4) Storage Location: qclab

5) Source Identification Number: Ra22606A000

****

CALIBRATION DATA

6) Activity as Received Units: 195.9 pCi/mL

7) Overall Uncertainty Percent: 3.30%

8) Reference Date / Time: 11/1/2001

9) Activity dpm/g: 422.23 dpm/g

10) Volume or Mass (ml/g): 100 mL

11) Calibrated by: IPL

12) Certificate Solution Number: 763-63-7

****

SURVEY DATA

13) Date Received: 3/21/2006 from Denver Lab

14) Surveyed by: tda

15) Survey Reading (Beta/Gamma) cpm: <300 cpm

16) Survey Reading (Alpha) cpm: 0

****

17) Activity Conversion: 195.9 pCi/mL x 2.22 dpm/pCi / 1.025 g/mL =

422.23 dpm/g

18) Remarks: From STL Denver #RA22601AL

19) Isotope File Updated by: tda 3/21/2006

20) QC Approved: J.C. 8/7/06

STL# RA226O1AL
REC'D 10/25/01

Isotope Products Laboratories
An Eckert & Ziegler Company

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661•309•1010
Fax 661•257•8303

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

Radionuclide:	Ra-226	**Customer:**	SEVERN TRENT LABORATORIES, INC.
Half-life:	1600 ± 7 years	**P.O. No.:**	1173413
Catalog No.:	7226	**Reference Date:**	1-Nov-01 12:00 PST
Source No.:	763-63-7	**Contained Radioactivity:**	0.09795 µCi 3.624 kBq

Physical Description:

A. Mass of solution:	1.15278 g in 1 mL V-Vial
B. Chemical form:	$Ra(NO_3)_2$ in 1M HNO_3
C. Carrier content:	10 µg Ba/mL of solution
D. Density:	1.0318 g/mL @ 20°C.

Radioimpurities:

None detected (Daughters not in equilibrium as of 22 Oct 01)

Radionuclide Concentration: 0.08497 µCi/g, 3.144 kBq/g

Method of Calibration:

This source was prepared from a weighed aliquot of solution whose activity in µCi/g was determined using gamma ray spectrometry.

Peak energy used for integration:	186.0 keV
Branching ratio used:	0.0351 gammas per decay

Uncertainty of Measurement:

A. Type A (random) uncertainty:	± 1.3 %
B. Type B (systematic) uncertainty:	± 3.0 %
C. Uncertainty in aliquot weighing:	± 0.4 %
D. Total uncertainty at the 99% confidence level:	± 3.3 %

Notes:

- See reverse side for leak test(s) performed on this source.
- IPL participates in a NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).
- Nuclear data was taken from NCRP Report No. 58, 1985.
- This solution has a working life of 5 years.

Am U Khan — Quality Control

22-Oct-01 — Date Signed

IPL Ref. No.: 763-63

RADIUM 226

CONTINUING CALIBRATION

Quality Assurance Report. Generated 6-FEB-2007 16:08:01.95

QA Filename : $DISK1:[SCINT3.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-3
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 249674.000000 Upper Bound : 270464.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JAN-2006 00:00 End Date : 1-JUL-2006 00:00
Mean : 260069.015625 Std Deviation : 3465.084961

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
2-JAN-2007 08:40	count		260187.0000	| | |
3-JAN-2007 09:57	count		266196.0000	| | |
4-JAN-2007 08:46	count		263415.0000	| | |
5-JAN-2007 08:33	count		264762.0000	| | |
8-JAN-2007 08:35	count		262790.0000	| | |
9-JAN-2007 08:33	count		260047.0000	| | |
10-JAN-2007 09:31	count		264474.0000	| | |
11-JAN-2007 09:11	count		265175.0000	| | |
11-JAN-2007 16:54	count		2.0000	Be|Ac| |
12-JAN-2007 08:45	count		260393.0000	| | |
13-JAN-2007 07:47	count		265048.0000	| | |
15-JAN-2007 08:46	count		258736.0000	| | |
17-JAN-2007 09:02	count		258675.0000	| | |
18-JAN-2007 08:46	count		260230.0000	| | |
19-JAN-2007 08:55	count		264580.0000	| | |
22-JAN-2007 09:17	count		258394.0000	| | |
23-JAN-2007 08:41	count		261374.0000	| | |
24-JAN-2007 09:23	count		258629.0000	| | |
26-JAN-2007 08:37	count		259814.0000	| | |
29-JAN-2007 08:47	count		261189.0000	| | |
30-JAN-2007 09:05	count		263326.0000	| | |

31-JAN-2007 09:52 count 261200.0000 | | |
1-FEB-2007 08:48 count 260783.0000 | | |

Quality Assurance Report. Generated 6-FEB-2007 16:08:02.36

QA Filename : $DISK1:[SCINT3.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-3
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 0.000000 Upper Bound : 5.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUN-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.000000 Std Deviation : 0.000000

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
26-JAN-2007 16:14	count		0.0000	| | |

Quality Assurance Report. Generated 6-FEB-2007 16:08:22.27

QA Filename : $DISK1:[SCINT6.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check ascint-6
Parameter Units : counts Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 23774.000000 Upper Bound : 24618.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-AUG-2006 00:00 End Date : 1-NOV-2006 00:00
Mean : 24302.363281 Std Deviation : 210.522400

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
2-JAN-2007 08:40	count		24506.0000	| | |
3-JAN-2007 09:57	count		24229.0000	| | |
4-JAN-2007 08:46	count		23679.0000	Be|In| |
4-JAN-2007 09:02	count		24076.0000	| | |
5-JAN-2007 08:33	count		24207.0000	| | |
8-JAN-2007 08:35	count		24635.0000	Ab| | |
8-JAN-2007 08:52	count		24424.0000	| | |
9-JAN-2007 08:33	count		24185.0000	| | |
10-JAN-2007 09:31	count		24744.0000	Ab|In| |
10-JAN-2007 09:44	count		24491.0000	| | |
11-JAN-2007 09:12	count		24541.0000	| | |
11-JAN-2007 16:54	count		3.0000	Be|Ac| |
12-JAN-2007 08:45	count		24445.0000	| | |
13-JAN-2007 07:41	count		24501.0000	| | |
15-JAN-2007 08:46	count		24268.0000	| | |
17-JAN-2007 09:02	count		24282.0000	| | |
18-JAN-2007 08:46	count		24390.0000	| | |
19-JAN-2007 08:55	count		24325.0000	| | |
22-JAN-2007 09:17	count		24134.0000	| | |
23-JAN-2007 08:41	count		24274.0000	| | |
24-JAN-2007 09:23	count		24091.0000	| | |

STL/RICHLAND

25-JAN-2007 08:22	count	24310.0000	| |	
26-JAN-2007 08:37	count	24515.0000	| |	
29-JAN-2007 08:47	count	24274.0000	| |	
30-JAN-2007 09:05	count	24336.0000	| |	
31-JAN-2007 10:10	count	24323.0000	| |	
1-FEB-2007 08:48	count	24140.0000	| |	

Quality Assurance Report. Generated 6-FEB-2007 16:08:22.62

QA Filename : $DISK1:[SCINT6.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-6
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 0.000000 Upper Bound : 5.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUN-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 2.000000 Std Deviation : 1.603567

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
26-JAN-2007 16:14	count		0.0000	| | |

Quality Assurance Report. Generated 5-MAR-2007 16:04:59.14

QA Filename : $DISK1:[SCINT10.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-10
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 11253.000000 Upper Bound : 12063.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-AUG-2006 00:00 End Date : 1-NOV-2006 00:00
Mean : 11677.519531 Std Deviation : 141.200577

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
2-JAN-2007 07:51	count		11589.0000	| | |
3-JAN-2007 08:19	count		11774.0000	| | |
4-JAN-2007 08:10	count		11571.0000	| | |
5-JAN-2007 07:48	count		11726.0000	| | |
8-JAN-2007 07:49	count		11626.0000	| | |
9-JAN-2007 07:51	count		11638.0000	| | |
10-JAN-2007 07:57	count		11732.0000	| | |
11-JAN-2007 08:31	count		11945.0000	| | |
11-JAN-2007 16:54	count		1.0000	Be|Ac| |
12-JAN-2007 08:05	count		11768.0000	| | |
13-JAN-2007 07:28	count		11867.0000	| | |
15-JAN-2007 08:06	count		11657.0000	| | |
17-JAN-2007 08:15	count		11600.0000	| | |
18-JAN-2007 08:03	count		11674.0000	| | |
19-JAN-2007 08:12	count		11659.0000	| | |
22-JAN-2007 08:35	count		11374.0000	|In| |
23-JAN-2007 07:55	count		11703.0000	| | |
24-JAN-2007 07:52	count		11906.0000	| | |
26-JAN-2007 07:53	count		11647.0000	| | |
29-JAN-2007 08:05	count		11764.0000	| | |
30-JAN-2007 08:25	count		11947.0000	| | |

31-JAN-2007 09:15	count	11782.0000	| |	
1-FEB-2007 08:02	count	11712.0000	| |	
5-FEB-2007 08:06	count	11648.0000	| |	
7-FEB-2007 08:22	count	11540.0000	| |	
8-FEB-2007 07:51	count	11789.0000	| |	
9-FEB-2007 07:49	count	11675.0000	| |	
12-FEB-2007 07:39	count	11741.0000	| |	
13-FEB-2007 07:55	count	11766.0000	| |	
14-FEB-2007 07:46	count	11803.0000	| |	

Quality Assurance Report. Generated 5-MAR-2007 16:04:59.52

QA Filename : $DISK1:[SCINT10.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-10
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 0.000000 Upper Bound : 5.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUN-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 1.142857 Std Deviation : 0.899735

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
26-JAN-2007 16:15	count		2.0000	| | |

Quality Assurance Report. Generated 5-MAR-2007 16:05:07.40

QA Filename : $DISK1:[SCINT16.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-16
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 22908.199219 Upper Bound : 23435.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-AUG-2006 00:00 End Date : 1-JAN-2007 00:00
Mean : 23187.943359 Std Deviation : 180.876251

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
2-JAN-2007 07:51	count		23060.0000	| | |
3-JAN-2007 08:19	count		23331.0000	| | |
4-JAN-2007 08:10	count		23149.0000	| | |
5-JAN-2007 07:48	count		23481.0000	Ab| | |
5-JAN-2007 08:10	count		23160.0000	| | |
8-JAN-2007 07:49	count		23487.0000	Ab| | |
8-JAN-2007 08:16	count		23510.0000	Ab| | |
9-JAN-2007 07:51	count		23284.0000	| | |
10-JAN-2007 07:57	count		23233.0000	| | |
11-JAN-2007 08:31	count		23084.0000	| | |
11-JAN-2007 16:55	count		2.0000	Be|Ac| |
12-JAN-2007 08:05	count		23350.0000	| | |
13-JAN-2007 07:28	count		23198.0000	| | |
15-JAN-2007 08:06	count		22999.0000	| | |
17-JAN-2007 08:15	count		23390.0000	| | |
18-JAN-2007 08:03	count		23135.0000	| | |
19-JAN-2007 08:12	count		23378.0000	| | |
22-JAN-2007 08:36	count		23311.0000	| | |
23-JAN-2007 07:55	count		23310.0000	| | |
24-JAN-2007 07:52	count		23208.0000	| | |
26-JAN-2007 07:54	count		23335.0000	| | |

29-JAN-2007 08:05	count	23153.0000	| | |
30-JAN-2007 08:25	count	23243.0000	| | |
31-JAN-2007 09:35	count	23070.0000	| | |
1-FEB-2007 08:03	count	23638.0000	Ab|In| |
1-FEB-2007 08:25	count	23372.0000	| | |
5-FEB-2007 08:06	count	23155.0000	| | |
8-FEB-2007 07:51	count	23593.0000	Ab|In| |
8-FEB-2007 08:16	count	23775.0000	Ab|Ac| |
9-FEB-2007 07:49	count	23591.0000	Ab|In| |
9-FEB-2007 08:07	count	23297.0000	| | |
12-FEB-2007 07:39	count	23561.0000	Ab|In| |
12-FEB-2007 08:00	count	23215.0000	| | |
13-FEB-2007 07:55	count	23368.0000	| | |
14-FEB-2007 07:46	count	23163.0000	| | |

Quality Assurance Report. Generated 5-MAR-2007 16:05:07.80

QA Filename : $DISK1:[SCINT16.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-16
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 0.000000 Upper Bound : 5.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUN-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 2.250000 Std Deviation : 1.035098

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
26-JAN-2007 16:15	count		5.0000	|In| |

Quality Assurance Report. Generated 5-MAR-2007 16:05:15.37

QA Filename : $DISK1:[SCINT18.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-18
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 19816.000000 Upper Bound : 21118.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-AUG-2006 00:00 End Date : 1-NOV-2006 00:00
Mean : 20453.871094 Std Deviation : 182.771866

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
2-JAN-2007 08:40	count		20305.0000	| | |
3-JAN-2007 09:58	count		20425.0000	| | |
4-JAN-2007 08:47	count		20528.0000	| | |
5-JAN-2007 09:05	count		20513.0000	| | |
8-JAN-2007 08:55	count		20234.0000	| | |
9-JAN-2007 08:33	count		20438.0000	| | |
10-JAN-2007 09:31	count		20447.0000	| | |
11-JAN-2007 09:12	count		20663.0000	| | |
12-JAN-2007 08:46	count		20846.0000	|In| |
17-JAN-2007 09:03	count		20310.0000	| | |
18-JAN-2007 08:46	count		20557.0000	| | |
19-JAN-2007 08:55	count		20070.0000	|In| |
23-JAN-2007 08:41	count		20370.0000	| | |
24-JAN-2007 09:23	count		20593.0000	| | |
26-JAN-2007 08:37	count		20653.0000	| | |
29-JAN-2007 08:47	count		20619.0000	| | |
30-JAN-2007 09:05	count		20685.0000	| | |
31-JAN-2007 10:10	count		20374.0000	| | |
1-FEB-2007 09:08	count		20378.0000	| | |
5-FEB-2007 09:04	count		20309.0000	| | |
8-FEB-2007 09:09	count		21624.0000	Ab|Ac| |

8-FEB-2007 09:23	count	22072.0000	Ab|Ac| |
9-FEB-2007 08:58	count	21441.0000	Ab|Ac| |
12-FEB-2007 08:43	count	22149.0000	Ab|Ac| |
12-FEB-2007 08:57	count	21805.0000	Ab|Ac| |
13-FEB-2007 08:30	count	21764.0000	Ab|Ac| |
13-FEB-2007 08:53	count	21558.0000	Ab|Ac| |
14-FEB-2007 08:33	count	20268.0000	| | |

Quality Assurance Report. Generated 5-MAR-2007 16:05:15.75

QA Filename : $DISK1:[SCINT18.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-18
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 0.000000 Upper Bound : 5.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUN-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.428571 Std Deviation : 0.786796

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
26-JAN-2007 16:15	count		0.0000	| | |

Quality Assurance Report. Generated 5-MAR-2007 16:05:23.27

QA Filename : $DISK1:[SCINT21.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-21
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 75978.000000 Upper Bound : 79693.000000

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
2-JAN-2007 08:40	count		77544.0000	| | |
3-JAN-2007 09:58	count		78072.0000	| | |
4-JAN-2007 08:47	count		78101.0000	| | |
5-JAN-2007 08:34	count		77936.0000	| | |
8-JAN-2007 08:35	count		78834.0000	| | |
9-JAN-2007 08:33	count		78123.0000	| | |
10-JAN-2007 09:31	count		78787.0000	| | |
11-JAN-2007 09:12	count		78427.0000	| | |
12-JAN-2007 08:46	count		78537.0000	| | |
13-JAN-2007 07:45	count		78727.0000	| | |
15-JAN-2007 08:46	count		78016.0000	| | |
17-JAN-2007 09:03	count		78336.0000	| | |
18-JAN-2007 08:46	count		77737.0000	| | |
19-JAN-2007 08:55	count		77705.0000	| | |
22-JAN-2007 09:17	count		77935.0000	| | |
23-JAN-2007 08:41	count		78344.0000	| | |
24-JAN-2007 09:23	count		78268.0000	| | |
26-JAN-2007 08:37	count		78223.0000	| | |
29-JAN-2007 08:47	count		78141.0000	| | |
30-JAN-2007 09:05	count		77609.0000	| | |
31-JAN-2007 09:53	count		77831.0000	| | |
1-FEB-2007 08:49	count		77882.0000	| | |
5-FEB-2007 09:04	count		78110.0000	| | |
8-FEB-2007 08:38	count		78423.0000	| | |
9-FEB-2007 08:26	count		77999.0000	| | |
12-FEB-2007 08:23	count		78282.0000	| | |
13-FEB-2007 08:30	count		77907.0000	| | |

14-FEB-2007 08:33 count 77974.0000 | | |

Quality Assurance Report. Generated 5-MAR-2007 16:05:23.58

QA Filename : $DISK1:[SCINT21.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-21
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 0.000000 Upper Bound : 5.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUN-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.000000 Std Deviation : 0.000000

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
26-JAN-2007 16:15	count		0.0000	| | |

Quality Assurance Report. Generated 5-MAR-2007 16:05:29.40

QA Filename : $DISK1:[SCINT24.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-24
Parameter Units : counts Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 44810.000000 Upper Bound : 47071.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JAN-2006 00:00 End Date : 1-JUL-2006 00:00
Mean : 45940.640625 Std Deviation : 376.874664

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
2-JAN-2007 07:51	count		45851.0000	| | |
3-JAN-2007 08:19	count		45776.0000	| | |
4-JAN-2007 08:10	count		45604.0000	| | |
5-JAN-2007 07:48	count		45879.0000	| | |
8-JAN-2007 07:50	count		46852.0000	|In| |
9-JAN-2007 07:52	count		46459.0000	| | |
10-JAN-2007 07:57	count		46580.0000	| | |
11-JAN-2007 08:31	count		46466.0000	| | |
12-JAN-2007 08:05	count		45877.0000	| | |
13-JAN-2007 07:45	count		46074.0000	| | |
15-JAN-2007 08:06	count		45870.0000	| | |
17-JAN-2007 08:15	count		45733.0000	| | |
18-JAN-2007 08:03	count		45705.0000	| | |
19-JAN-2007 08:12	count		45915.0000	| | |
22-JAN-2007 08:36	count		45400.0000	| | |
23-JAN-2007 07:56	count		45846.0000	| | |
24-JAN-2007 07:53	count		46036.0000	| | |
25-JAN-2007 08:22	count		46207.0000	| | |
26-JAN-2007 07:54	count		46023.0000	| | |
29-JAN-2007 08:06	count		46139.0000	| | |
30-JAN-2007 08:25	count		45506.0000	| | |

31-JAN-2007 09:15	count	45847.0000	| |	|
1-FEB-2007 08:03	count	45988.0000	| |	|
5-FEB-2007 08:06	count	45869.0000	| |	|
7-FEB-2007 08:22	count	46918.0000	|In|	|
8-FEB-2007 07:51	count	46231.0000	| |	|
9-FEB-2007 07:49	count	46402.0000	| |	|
12-FEB-2007 07:39	count	46157.0000	| |	|
13-FEB-2007 07:55	count	45968.0000	| |	|
14-FEB-2007 07:47	count	46400.0000	| |	|

Quality Assurance Report. Generated 5-MAR-2007 16:05:29.77

QA Filename : $DISK1:[SCINT24.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-24
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 0.000000 Upper Bound : 5.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUN-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.142857 Std Deviation : 0.377964

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
26-JAN-2007 16:15	count		0.0000	| | |